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ABSTRACT

Following an 11-month period of study, planning, and pilot testing, a project was undertaken at Central Piedmont Community College (CPCC) to implement quality circles, i.e., small groups of employees doing similar work who voluntarily meet on a regular basis to set goals, identify and analyze problems, find solutions, and cooperate with management to implement those solutions. The project's objectives were to orient line managers to quality circle concepts, establish an advisory committee, train facilitators and circle leaders, implement quality circles, produce instructional materials, build statewide awareness of the concept, evaluate the project, and develop a plan for implementing quality circles in interested institutions. From July 1981 to November 1982, 16 workgroup quality circles, involving 200 of CPCC's 560 employees, completed 40 improvement projects, and 7 taskforces were formed to address specific problems. Over 1,700 people representing 250 colleges and public schools attended presentations or workshops led by the project staff. An assessment of the project found that while attitudes and problem-solving abilities improved significantly due to quality circle involvement, communication with administration, students, and other workgroups did not improve significantly. The project report examines the quality circle concept; explains the project's organization, procedures, and results; and offers recommendations. Extensive appendices include information on the philosophy and operations of quality circles and project-specific materials. (Author/LL)

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QUALITY CIRCLES IN EDUCATION

FINAL REPORT

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June, 1983

A Project Funded
by the
North Carolina Department of Community Colleges
Raleigh, North Carolina

VC 830 328

NORTH CAROLINA DEPARTMENT OF COMMUNITY COLLEGES
DIVISION OF PLANNING AND RESEARCH SERVICES
OCCUPATIONAL EDUCATION RESEARCH SERVICES
RALEIGH, NORTH CAROLINA 27611

RESEARCH PRIORITY AREA: Institutional Educational Program Improvement

PROJECT TITLE: Quality Circles in Education

PURPOSE: To Implement Quality Circles at Central Piedmont Community College

PROJECT DATES: Beginning: 7/10/81 Ending: 11/9/82
Duration: 16 Months

BUDGET: $21,627

AGENCY: Central Piedmont Community College
P. O. Box 35009
Charlotte, NC 28235

PROJECT DIRECTOR: H. Lynn Moretz
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ABSTRACT

QUALITY CIRCLES IN EDUCATION

Following an eleven-month period of study and planning, a pilot quality circle was formed at Central Piedmont Community College (CPCC) in January, 1981.

The potential demonstrated by that circle prompted a grant proposal seeking funds to implement quality circles throughout the institution. This report describes the project funded under that proposal from July, 1981 to November 1982.

Principal objectives of the project were:

(1) Orientation. To orient all top, middle and first line managers to quality circle concepts and their potential for education.

(2) Advisory Committee. To establish a representative advisory group to recommend quality circle goals and policy.

(3) Facilitators. To train resource persons to assist circle formation and training.

(4) Circle Leaders. To train six or more circle leaders.

(5) Initial Circles. To implement six or more quality circles at CPCC.

(6) Training Materials Development. To produce audiovisual and print instructional materials specific to quality circles in education.

(7) Systemwide Awareness. To build an awareness among North Carolina Community College System institutions of the quality circle concept and its potential for education.

(8) Evaluation. To assess the effectiveness of project organization and procedures.

(9) Plan for Systemwide Implementation. To provide a plan for implementing quality circles in interested system institutions.

A total of sixteen workgroup quality circles were formed. These circles completed more than forty improvement projects and the members reported significant improvement in communications, goal setting, trust and teamwork. In addition, seven task force teams were formed to focus on specific problems. Task force leaders were given an orientation workshop on quality circle concepts and leadership. These groups are expected to report by July, 1983.

Approximately 200 CPCC employees have participated in quality circle training or membership. More than 1,700 people representing more than 250 colleges, universities and public schools have attended presentations and workshops led by the project director or facilitators.

Major conclusions and recommendations resulting from this project were:

(1) Community colleges can implement quality circles effectively with instructional and other professional personnel as well as in "blue collar" operational areas. They should be encouraged to do so after study, planning and training.

(2) Quality circle facilitator training should be provided for North Carolina Community College System personnel

in the Western, Piedmont and Eastern sections of the State.

(3) Community Colleges should develop training programs for industry in quality enhancement through employee involvement. These offerings should draw on the colleges' own experience with quality circles for credibility and relevance.

(4) Community college students, especially those in occupational curricula should be taught the concepts, philosophy and techniques of team problem solving through the quality circles process. This instruction should include internships in businesses with circle programs whenever possible.

(5) Community colleges should take a leading role in encouraging participative management strategies that involve employees at all levels and recognize fairly their contributions. With proper preparation, based on their own experience, community colleges could make contributions in human motivation, quality of work life and product quality that would rival hoped-for advances in high technology training. The fundamental value of human creativity and motivation to cooperate must not be overlooked in the rush to high technology. Advances in both areas are required if American industry is to compete in world markets and regain those lost at home.

ACKNOWLEDGEMENTS

Many people contributed to the success of this project in various ways. Special gratitude is felt for the participation and enthusiasm of quality circle members and leaders, and for the support provided by their administrators.

Grateful acknowledgement is extended to the following people for their direct assistance:

For service on the Advisory Committee: Elouise Carter, Bob Gossett, René Wescott, Bill Kibler, Carol Lincoln, Doris McIlwain, Mike Osborne, Don Shepherd, Terilyn Turner, Harold Walker, Ed Yates (all from CPCC); Fred Manley and Jerry Owens from the North Carolina Department of Community Colleges;

For creative quality circle facilitation and training, Doris McIlwain and Don Shepherd;

For support and encouragement from the initial idea to the present, Dr. William McIntosh and Dr. Richard Hagemeyer;

For sound judgement and secretarial help of the finest calibre, Sandi Sides;

And for the reproduction and binding of this report, the "Copycats" quality circle in the CPCC Reprographics Department.

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I. INTRODUCTION

Quality Circles

The Japanese have astonished the world. In just over twenty years, they have erased their reputation as "junk merchant" and now lead the world in quality and productivity. A major factor in that remarkable success is the committed, systematic involvement of Japanese employees in quality and productivity improvement. This involvement takes place through small groups often called "Quality Circles" (Appendix A).

The quality circle concept originated in Japan in 1961 as an outgrowth of American assistance after World War II. Quite simply, a quality circle is:

> A small group of employees doing similar work who voluntarily meet on a regular basis to set goals, identify and analyze problems, find solutions, and cooperate with management to implement those solutions or improvements.

First established in America in 1974, circle programs have grown rapidly in industry since 1979. At least 4,000 American companies now have quality circle programs (May, 1983).

Quality Circles at Central Piedmont Community College

Early in 1980, a study of the quality circle process was begun at Central Piedmont Community College (CPCC). By December, the understanding and support of the college administration had been obtained and a pilot circle planned in the Media Production department. This circle, believed to be the first in an American educational institution, began meeting in January, 1981 (Appendix B).

What do quality circles actually do? First, they learn the "people building" philosophy of quality circle management. This includes recognizing the expertise and contribution of every employee; fostering mutual respect and trust; avoiding gossip and "fingerpointing"; focusing on issues, not personalities; helping members learn and grow; and maintaining members' self-esteem and group identity (Appendix C).

Within this philosophical framework, circle members learn and apply various problem solving tools, including:

- Brainstorming
- Prioritizing Techniques
- Cause and Effect Analysis
- Data Collection Techniques
- Statistical Quality Control Techniques
- Pareto Analysis (Concept of "Vital Few, Trivial Many")
- Force Field Analysis
- Group Dynamics
- Presentation Techniques

Applying those tools systematically, circles generally follow these steps in completing improvement projects (Appendix D):

Step	Task	People Involved
1.	Problem Identification	Members, Others
2.	Problem (Project) Selection	Members Only
3.	Cause and Effect Analysis	Members, Others*
4.	Data Collection	Members, Others*
5.	Data Analysis	Members, Others*
6.	Solution/Improvement Finding	Members, Others*
7.	Circle Presentation to Management	Members, Management
8.	Implementation	Members, Others

*Upon invitation by members.

A "facilitator" plays a key role in implementing quality circles. The facilitator, well versed in group dynamics and quality circle techniques, trains circle leaders and assists leaders with member training. Typically, the circle leader is the workgroup supervisor. The facilitator is not a member of the workgroup, but normally meets with the circle during its first project cycle. Circles involve employees and recognize their achievements. Because participation is voluntary, a sense of ownership and commitment to improve is developed.

The Problem

Recently a vice president of one of America's largest and best managed firms was asked, "What, in your opinion, is the key issue facing American business over the next decade?" He answered:

> The key issue will not be technology or investment, not regulation or inflation. They key issue will be the way in which we respond to one fact--the Japanese know how to manage better than we do.
>
> (Ouchi, 1981)

That issue of how to manage is a common concern--certainly apparent in education as well as industry. A hallmark of Japanese management processes is employee involvement in systematic problem solving and improvement seeking through quality circle groups. American businesses that have implemented quality circle programs often report significant improvements in quality, productivity, employee morale and communications. Increasing numbers of American managers are recognizing the validity of systematic employee problem solving teams.

The problem addressed by this project was the lack of

an ongoing process in North Carolina Community College System institutions to systematically involve employees in identifying and solving problems that impact on the quality of services delivered to students. This project attacked that problem through a plan to implement quality circles in one North Carolina Community College System institution and to disseminate the results throughout the system.

Project Objectives

Specific objectives of this project were:

(1) To orient all top, middle and first line management to quality circle concepts, their effectiveness in industry, and their potential for education.

(2) To establish an advisory committee which will develop and recommend quality circle policy to top level administration. This committee will include campuswide representation.

(3) To provide two or more resource persons trained to assist in circle formation, training and facilitation.

(4) To train six or more quality circle leaders.

(5) To implement six or more quality circles including three or more in occupational education departments and others among administrative and operational areas.

(6) To produce audiovisual and print instructional materials specific to quality circles in education for implementation of quality circles subsequent to the project.

(7) To build an awareness among North Carolina Community College System educators during the project year of the quality circle process and the project's role in adapting that process to educational institutions. The project director will make at least four presentations to professional groups in the system, one of which will be the Presidents' Association.

(8) To assess the effectiveness of the project organization and procedures during, and at the end of the project.

(9) To provide a written plan at the end of the project year for implementing quality circles in interested system institutions. This plan will include a description of regional workshops for orientation and detailed instruction for implementing quality circles.

In addition, during the project year, the director and Advisory Committee developed the following program goals:

(1) To encourage management processes which enhance respect for the individual and seek to improve trust, communication and teamwork among workgroup members and between faculty, staff and administration.

(2) To develop and apply employee expertise and experience more effectively toward improvements in service and worklife quality and productivity.

(3) To implement, within and among workgroups, voluntary systematic processes for participation in setting goals, identifying problems and solving problems.

(4) To recognize and show appreciation for employee

contributions toward fulfilling the institution's teaching and service missions at higher levels of quality and productivity.

It is expected that these goals will continue to guide CPCC's efforts in participative goal setting and problem solving.

II. ORGANIZATION

One strength of the quality circle concept is that circles do their work within, and report through, the regular organization structure. Key roles in the project and their organizational relationships are described below:

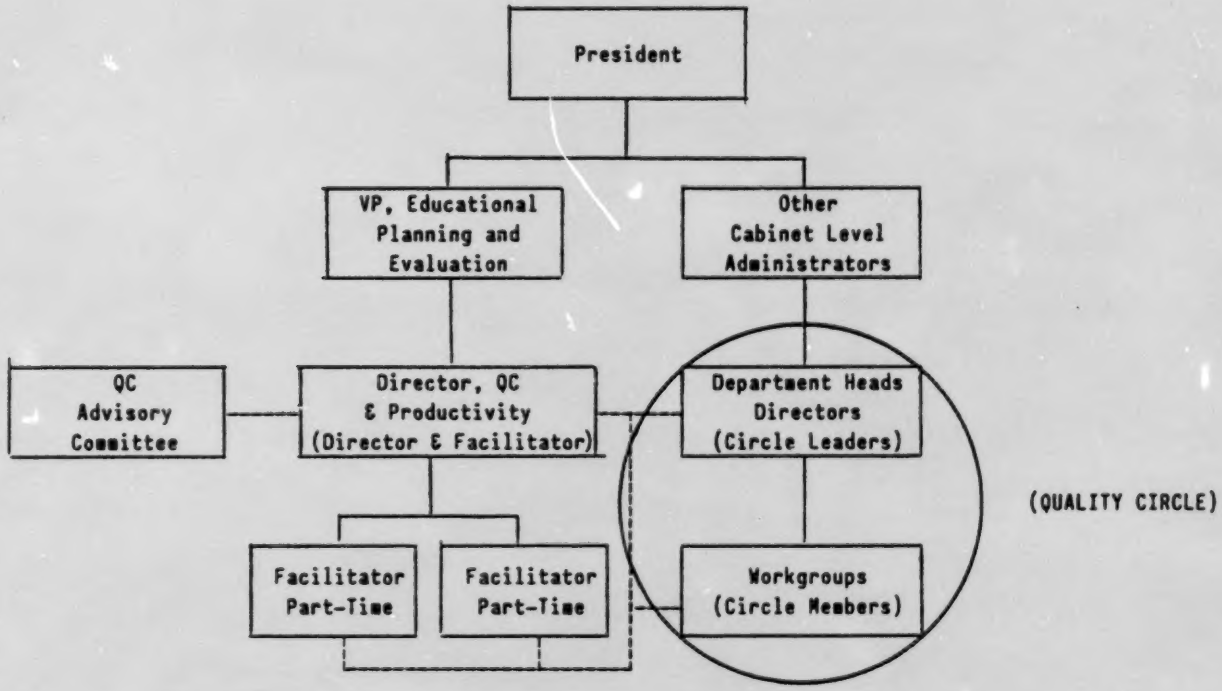
Key Roles

- Director, Quality Circles and Productivity: The primary responsibility of this position was to direct the Quality Circles in Education Project and to facilitate quality circles. Prior to the Quality Circles in Education Project, the director reported to the Vice President for Educational Planning and Evaluation. This reporting relationship was retained.
- Quality Circle Facilitator (Part-Time): Two persons to work as quality circle facilitators. In that role, they reported to the Director of Quality Circles and Productivity. Their principle role was to work as a team with the project director in training circle leaders, other administrators and circle members, and to meet with individual circles through at least their first project cycle.
- Quality Circle Advisory Committee: Chaired by the

project director, this fourteen-member volunteer group was composed of nominees of cabinet level administrators. It represented all major responsibility areas. Its functions were to recommend goals and policy, to help communicate the quality circle philosophy in their respective areas, and to provide feedback from those areas to the project director and facilitators.

Organization Chart

The following chart illustrates organizational relationships of the quality circle participants:



It should be noted that no line relationships existed between the project director and circle members. Circles were formed among various workgroups with their regular

supervisor as the leader. Traditional reporting channels remained intact. The relationships signified by broken lines on the chart were advisory and consultative, but included the training responsibilities of the project director and facilitators.

III. PROCEDURES

As noted earlier, the first quality circle at Central Piedmont Community College was begun some six months prior to the Quality Circles in Education Project. In fact, the potential demonstrated by that circle prompted the project proposal.

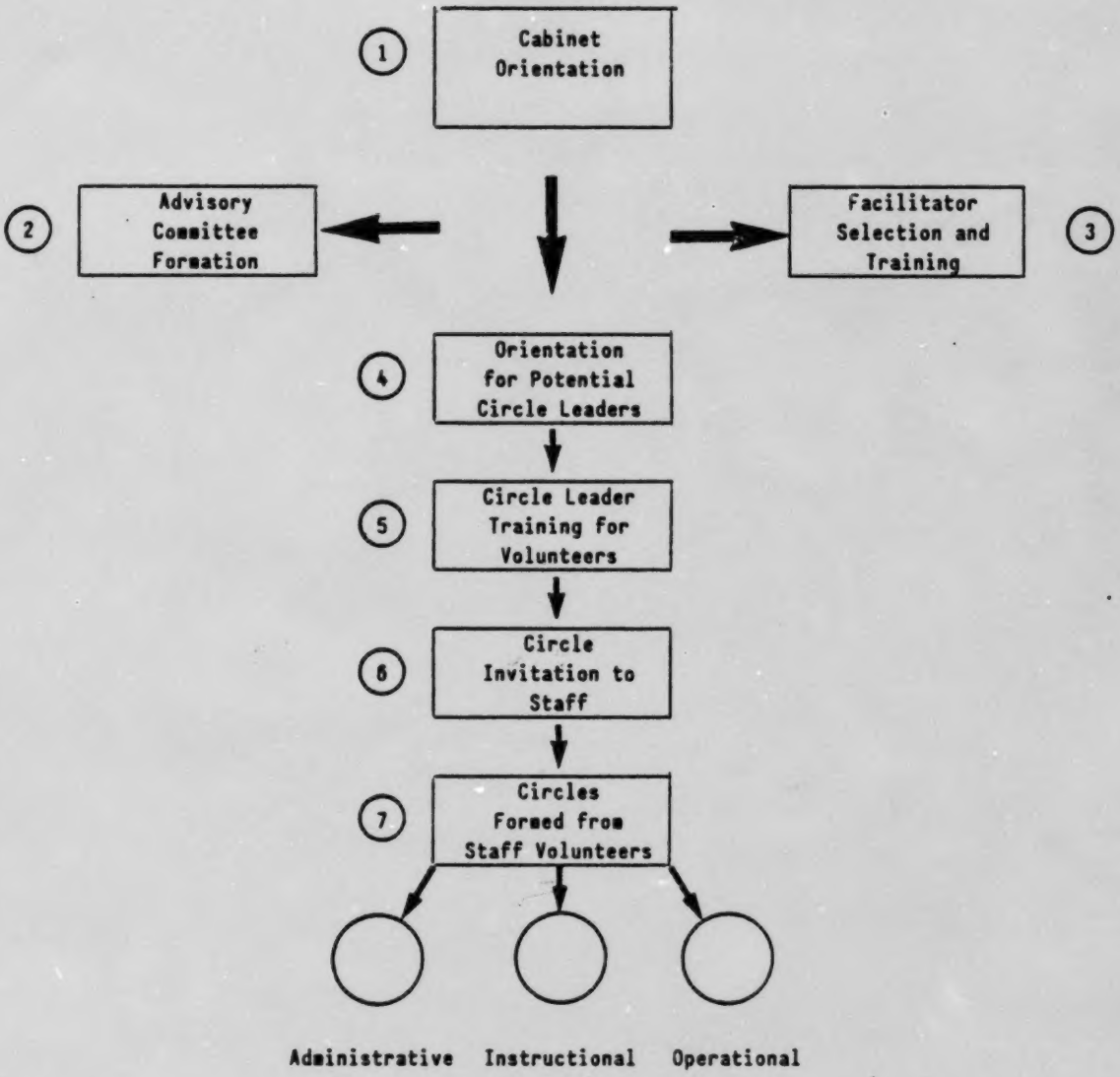
Preparations for the initial circle included a brief orientation for all upper level (cabinet) administrators. The formal implementation plan, however, was developed as a part of the Quality Circles in Education Project. This plan is diagrammed on the next page.

In accordance with the plan, the following steps were taken:

(1) Cabinet Orientation (July - August, 1981). The president, vice presidents and other top administrators were given copies of the project proposal and relevant articles. The next week a presentation of the grant proposal was made to the group and the planned process was fully discussed. Afterwards, the project director met individually with each cabinet member to answer questions and follow up any concerns they felt. At that meeting the role of the Advisory Committee

CENTRAL PIEDMONT COMMUNITY COLLEGE
QUALITY CIRCLES

PLANNED STEPS TO IMPLEMENTATION



was discussed and each administrator was asked to recommend a key person from his or her area of responsibility to serve on the advisory committee. In addition, the function of circle facilitators was discussed and the administrators were asked to share

their ideas regarding persons who could serve well in that role. Those individual sessions following up the group meeting were extremely valuable for clarifying the circle process, reinforcing the necessity of administrative support, and gaining personal commitment for the circle process and philosophy.

(2) Facilitator Selection and Training (July, 1981). Two persons were selected to work with the project director as part-time quality circle facilitators. They were Don Shepherd, a counselor with excellent skills and experience in group dynamics, and Doris McIlwain, a writer producer who was a member of the initial CPCC circle. Both were highly respected on campus and both had studied quality circles and group process literature extensively. Among the characteristics sought for the facilitators were:

- Credibility, and respect of faculty, administration, and staff.
- Ability to lead persuasively but unobtrusively. Ability to communicate effectively at all levels of the organization.
- Knowledge of and ability to apply quality circle problem solving techniques.
- Teaching and workshop development skills.
- Commitment to systematic improvement through workgroup involvement.

In the initial stages of the project, the facilitators worked approximately one-fourth time. Subsequently

their workload decreased to approximately one-fifth time. Each facilitated four circles. Although the project director and facilitators were well prepared for their roles by experience and self-instruction, no formal training was available (because of cost) until late in the project year. In July, 1981, the project director attended a week-long facilitator training workshop led by Productivity Development Systems of Clearwater, Florida. It was outstanding. Moreover, the consultants were willing to provide the facilitator training to Don and Doris without cost as a way of helping promote quality circles in education. As a result, all three project leaders received formal training and certification as quality circle facilitators.

(3) Advisory Committee Formation (July - August, 1981). The fourteen-member Advisory Committee for the project included a representative from each responsibility area managed by the various cabinet members. Also included were Fred Manley and Jerry Owens representing the funding agency and the Department of Community Colleges. Members included a vice president, instructional department heads, teachers, secretaries, the bookstore manager, a counselor, the computer center manager and the funding agency representative.

(4) Orientation for Potential Circle Leaders (July - August, 1981).

This orientation was conducted in the cabinet members' staff meetings. Included in the orientation were all first line supervisory personnel, the potential leaders of the workgroup quality circles. The orientation included:

- A description of the circle process and the project;
- Handouts showing the circle philsophy and process;
- Introductory journal articles;
- A question and answer discussion period.

Their potential role as circle leaders was explained and they were given an opportunity to suggest dates and times for the circle leader workshop to which they were to be invited. The voluntary aspects were stressed, along with people-building and participative management concepts.

(5) Initial Circle Leader Training for Volunteer Workgroup Leaders (September 21, 22, 1981).

The first circle leader training workshop filled at thirty volunteers. Twenty-seven potential circle leaders actually attended both days. Participants were divided into three groups for brainstorming, cause and effect diagramming, data analysis and Pareto exercises. Sessions were included in group dynamics and group maintenance. Enthusiasm during the workshop and evaluations at the end were high. Participants were urged to think carefully and to

proceed slowly with their staffs as circle formation was considered.

(6) Circle Invitation to Potential Members.

The plan provided that a workgroup leader who had attended a leader training workshop could, if he chose, invite his workgroup members to learn about the process directly and to consider forming a circle. Within one month of the initial workshop (Step 5), eight supervisors had expressed their intention to invite their staff to consider circles. Of those eight, a facilitator had met with five groups. Of the five groups, four had decided to form circles, one decided not to do so, and one was still weighing the prospect.

(7) Initial Circles Formed (September 22 - October 22, 1981).

By October 31, 1981, four circles had been formed: The original pilot circle (Media Production Department, the Advancement Studies Department, the Counseling Department, and the North Area Learning Center. As each circle was formed, the circle leader and the project director met with the appropriate vice president to inform him of the decision and to review the philosophy and process. This meeting served to reinforce the leader's confidence that the vice president understood and supported the process.

IV. RESULTS

Training

In addition to the orientation sessions described earlier, the project conducted overview sessions, workshops, and presentations for CPCC staff and others. Early in the project, a collection of articles was placed in the library for use by faculty and staff in learning more about the quality circle process.

The first leader training workshop was held September 21 -22, 1981. This workshop included an overview of quality circles philosophy and simulation of key circle processes (Agenda, Appendix E). All first line supervisors were invited (Appendix F) and the workshop filled with thirty registrants.

Participant evaluations were very good, averaging 4.2 of possible 5.0. The Brainstorming, Cause and Effect Diagrmming and Group Effectiveness sessions were rated as most effective and beneficial. The Pareto Concepts/Data Collection session was rated least beneficial. From participants in this workshop came the leaders of the first nine circles formed under the project.

The second leader training workshop was held March 22-23, 1982. All top level administrators were specifically invited, as well as other workgroup leaders who had not attended the first workshop. Ten of the fourteen top CPCC administrators attended the workshop, including the president. Other workgroup leaders filled the workshop at thirty participants. Participant evaluations again were high, averaging 4.4 of possible 5.0.

Brainstorming and Cause and Effect Diagramming were considered very beneficial simulations by workshop participants. The panel of quality circle facilitators from industry was also a workshop highlight (Agenda, Appendix E).

The third and final leader training workshop conducted during the project year was held June 2 - 3, 1982. Unlike the first two workshops, this one did not fill up. Eighteen people participated including three from the Charlotte Drug Education Center and three from a local industry. Evaluations were very good, averaging 4.5 on a 5.0 scale (Agenda, Appendix E).

During the project year, sixty-nine CPCC professional staff members attended circle leader workshops. Approximately sixty of those were supervisors, the others were staff members. In addition, at least seventy-five faculty and staff members attended five hour-long quality circle "Overview" sessions held during the year. In these sessions the project director and facilitators presented an overview of quality circle philosophy and process, showed the project slide program and videotapes, and answered questions about the concept and results at CPCC.

Quality Circles Formed

1. Workgroup Circles

The classic quality circle group is an existing workgroup consisting of a department or section reporting to a particular supervisor. The following workgroup circles were formed at CPCC.

	Department	Type	Date	Leader
1.	Media Production	Support Services	12/80	Don Ambrose
*2-4.	Advancement Studies (3)	Instruction	9/81	Tom Griffin
5.	Counseling	Support Services	10/81	Betty Watson
6.	North Area Learning Center	Administrative/Instruction	11/81	Bobbie Ross
*7-8.	Business Administration (2)	Instruction	11/81	Lois Dixon
9.	Medical Office and Records	Instruction	11/81	Jane Heedick
10.	Registration	Administrative Services	11/81	Ann Burnett
11.	Information/Admissions	Support Services	11/81	Betty Watson
12.	West Area Learning Center	Administrative/Instruction	11/81	Rae Frykberg
13.	Financial Aid	Support Services	4/82	Kent Eargle
14.	Performing Arts	Instruction	5/82	Gene Bryant
15.	Reprographics	Administrative Services	7/82	Marion Baker
**16.	Mailroom	Administrative Services	4/83	John Sauder

*Each of these circles began as a single departmental circle. Both were large groups (16 people each), however, and consequently reorganized into three and two circles respectively.

**Formed after the project termination date.

2. Task Force Circles

In addition to the foregoing workgroup circles, six task force groups were formed to seek improvements in specific areas. These groups were composed of volunteer members from various departments on campus. These task forces grew out of brainstorming sessions setup in September, 1982, to encourage involvement in areas in which improvements are being sought. The task forces elected their leaders, who were provided a half-day workshop in quality cirlcles processes by the facilitators. The six task forces formed were:

	Priority Area	Leader
1.	Student Attrition	Tangee Perry
2.	Student Support Services	Ross Surphlis
3.	Off-Campus/On-Campus Class Parity	Bobbie Ross
4.	Staff Development	Andy Nichols
5.	Instructional Equipment/Computer Capabilities	Wilna Ates
6.	Improving the Working/Learning Environment	Nancy Bryan

The goal of these task forces was to identify problems and recommend specific actions that might be taken to improve the situation.

A seventh task force was formed on April 28, 1983, to recommend ways to make more extensive and productive use of CPCC's mobile classroom unit. This group is led by the project director and includes ten others who were invited to take part. The task force strategy is listed below:

MOBILE CLASSROOM TASK FORCE CIRCLE

SUGGESTED PRIMARY TASKS

(1) Get familiar with mobile classroom;

(2) Raise awareness and seek ideas/input from faculty/staff/administration/students;

(3) Brainstorm ideas for all potential uses;

(4) Analyze cause and effect--Effect: "Mobile classroom is being used very little"--Identify causes/constraints;

(5) Identify important causes or constraints to use that can be eliminated and/or reduced;

(6) Develop list of potential uses that appear practical in light of unchangeable constraints;

(7) Prioritize a "hit list" of constraints to be removed;

(8) Prepare a recommended strategy for encouraging use;

(9) Present the recomendation.

Circle Projects

Projects undertaken during the course of the project focused almost exclusively on improving services to students. A case study of one circle will help the reader understand the application of quality circle processes.

The North Area Learning Center (NALC) is a leased facility located about twenty miles north of the CPCC campus. At the time the NALC circle began, the center staff consisted of the Director and four staff members, three of whom were part-time employees. The NALC coordinates all CPCC course offerings in the northern area of our service area. Most of these courses are taught in public school buildings, churches, community centers, etc., but a few courses are taught in the center itself.

Activities of the circle since its inception in November, 1981, include the following:

NALC Circle Activities

(1) Began by brainstorming a list of goals for the center.

(2) Used a decision grid to rank the goals in order of priority.

(3) Top ranked goal was "To maintain a high-quality academic and supportive atmosphere in the Center."

(4) Discussion revealed consensus that this goal was not being met at all times to the level desired by the staff.

(5) Restated the goal as a problem in order to analyze cause and effect. The problem statement was "<u>High Quality Supportive and Academic Atmosphere Is Not Always Prevalent</u>."

(6) Developed a cause and effect diagram to identify causes of the problem stated in number 5 above. This diagram is reproduced on the next page.

(7) Decided to undertake "Improvements in the telephone System" as first project theme.

(8) Listed the ways existing phone layout and equipment were undercutting service quality and staff efficiency.

(9) Developed a check sheet and used it at each phone to log data on occurrence of problems defined in number 8 (above) for a twenty-two day work month. More than 1,500 calls were logged.

(10) Analyzed the data and developed a recommendation for changes in telephone layout and equipment.

(11) Made management presentation demonstrating the problem as revealed by data collected and recommending a solution that would generate a net saving in staff time of approximately $100 per month while eliminating virtually all the earlier problems. The recommendation was accepted and subsequently implemented.

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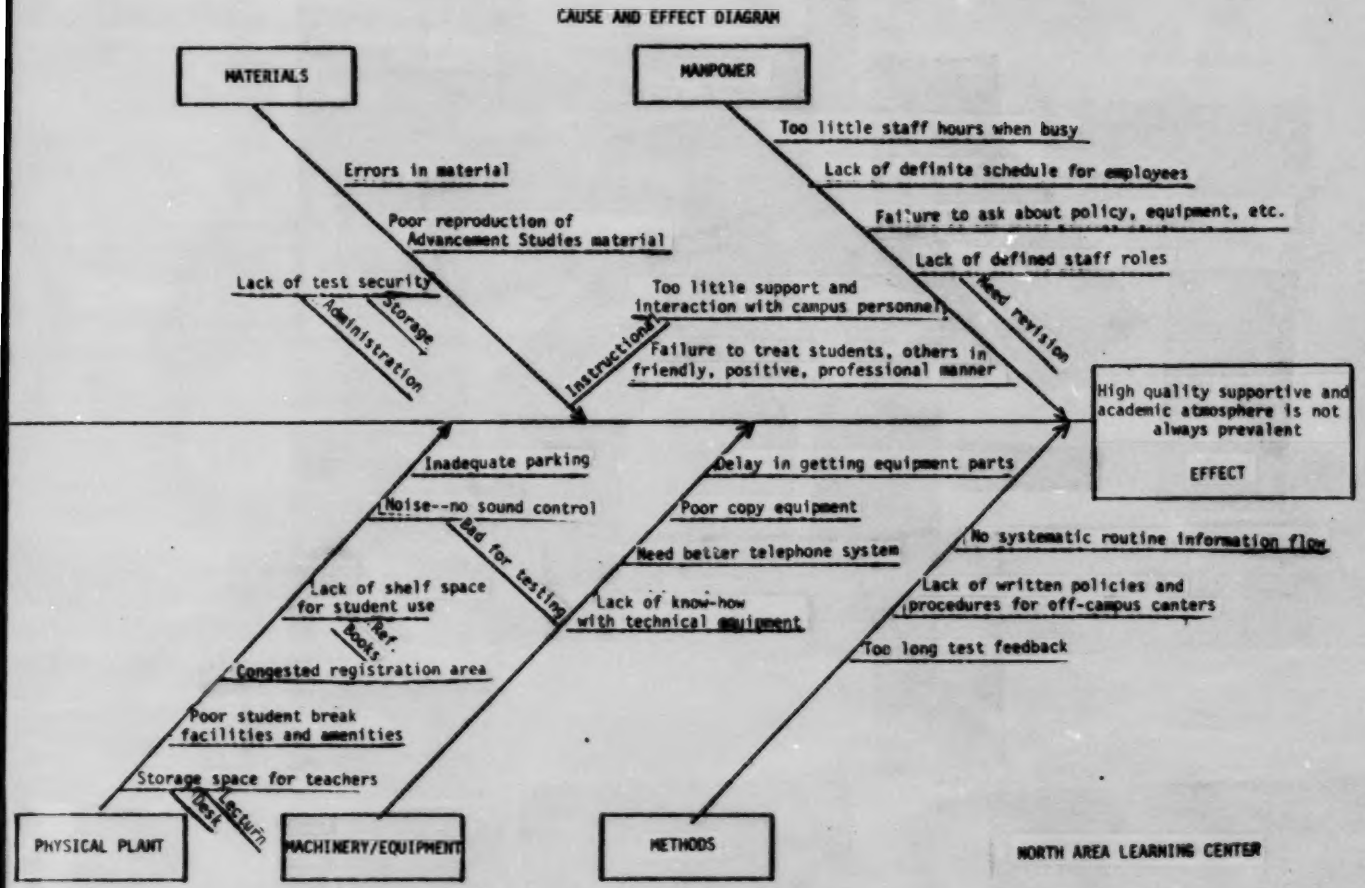
CAUSE AND EFFECT DIAGRAM
MATERIALS
MANPOWER
Too little staff hours when busy
Errors in material
Lack of definite schedule for employees
Poor reproduction of Advancement Studies material
Failure to ask about policy, equipment, etc.
Lack of defined staff roles
Need revision
Lack of test security
Storage
Administration
Too little support and interaction with campus personnel
Instructional
Failure to treat students, others in friendly, positive, professional manner
High quality supportive and academic atmosphere is not always prevalent
EFFECT
Inadequate parking
Delay in getting equipment parts
Noise--no sound control
Poor copy equipment
Bad for testing
Need better telephone system
No systematic routine information flow
Lack of shelf space for student use
Lack of know-how with technical equipment
Lack of written policies and procedures for off-campus centers
Ref. Books
Too long test feedback
Congested registration area
Poor student break facilities and amenities
Storage space for teachers
Desk
Lectern
PHYSICAL PLANT
MACHINERY/EQUIPMENT
METHODS
NORTH AREA LEARNING CENTER

The telephone project, including circle start-up training, took approximately three months. Other "causes" listed on the cause and effect chart were also addressed concurrently and subsequently, including:

(12) Systematically located and corrected errors in locally produced learning materials used in the center.

(13) Replaced poorly reproduced learning materials.

(14) Improved security of test storage and administration.

(15) Developed an improved parking arrangement (subsequently implemented).

(16) Increased shelf space for student materials and reference books.

(17) Created a break area for students and decorated it with donated materials.

(18) Improved desk storage space for instructors using the center.

(19) Sought and received donation of copying equipment.

(20) Cross-trained staff members on center equipment.

(21) Met with campus-based quality circles to develop policies regarding specific courses and to reduce time for test grading and return to center.

(22) Improved procedures for message delivery and announcement dissemination to staff.

(23) Significantly reduced the noise level in the center by analyzing cause and effect and implementing seven specific noise reduction projects.

Acceptance of the people-building philosophy and working together on improvement projects increased the sense of teamwork

and improved communications among NALC staff members. Center director, Ms. Bobbie Ross, says "We're working together as a team. The quality circle process helped us identify needed improvements and work on them in a non-threatening way."

Quality circles composed of instructors have completed the following projects:

(1) Developed written guidelines for learning center staff for off-campus administration of Advancement Studies courses.

(2) Devised an improved delivery system to speed test results feedback for off-campus Advancement Studies students.

(3) Established quarterly meetings with learning center staff to clarify issues and deal openly with concerns.

(4) Surveyed Advancement Studies students to learn orientation needs.

(5) Implemented orientation aids including temporary signs during registration and first class days.

(6) Established and staffed an information booth anwsering an average of twenty-five student questions per hour during early class days.

(7) Reorganized learning labs.

(8) Revised and updated lab course content.

(9) Created and implemented their own staff development plan for increasing their computer literacy.

(10) Devised and implemented a systematic procedure and format to notify media and campus personnel of

performances, plays, etc. to assure timely logistical support and media coverage.

The Reprographics circle has completed five projects, including improving communications. (When that project began, they rated the quality of their internal communications at 4.2 on a ten-point scale. After completing the communications project and the subsequent four others, they rated their communication at 8.5.) Other projects completed were decreasing interruptions, improving fire safety and security, improving crowded conditions in the pressroom and cutting waste by changing the methods and location of storing partial reams of paper.

This was the first "blue collar" circle at CPCC. Its impact was highlighted poignantly during the circle's first management presentation. Most of the President's Cabinet attended and gave the members a heartfelt round of applause. And then the members surprised their leader/supervisor with a plaque "In Appreciation for Her Trust, Encouragement, Respect and Teamwork." Improvement seeking in an environment of respect, encouragement, trust and teamwork is what the circle process is all about.

Other circles have developed and implemented new financial aid policies to encourage student persistence through counseling, tutoring and "classroom success" mini-courses; developed and implemented new promotion ideas for learning centers; and improved registration processes for foreign students (students from more than ninety foreign countries attend CPCC).

Member Assessment

A circle member reaction survey was completed at the

termination of the project in November, 1982. Sixty-three percent of the members responded on the anonymous questionnaire. Their responses are summarized below:

QUALITY CIRCLE MEMBER SURVEY

For the following items, please indicate your judgment of the effect of your workgroup's use of quality circle processes: (Please use "NA" if item does not apply.)

		Better	No Change	Worse
1.	Attitude Factors (within group)			
A.	Communication within group	75%	25%	0%
B.	Trust within group	63%	35%	2%*
C.	Cooperation/teamwork within group	83%	15%	2%*
D.	Commitment to achieving group's improvement goals	75%	25%	0%
E.	Other: "Having fun together"	2%	—	—
2.	Problem Solving Factors			
A.	Goal setting/prioritizing	88%	10%	2%*
B.	Problem identification/prioritizing	88%	10%	2%*
C.	Cause and effect analysis	63%	37%	0%
D.	Data collection/analysis/use	59%	41%	0%
E.	Developing consensus-based solutions	70%	30%	0%
F.	Obtaining administration support	33%	65%	2%*
G.	Implementing solutions	53%	45%	2%
H.	Other	—	—	—
3.	Interaction Factors			
A.	Confidence in administration's support	28%	72%	0%
B.	Providing input that helps your supervisor manage	48%	50%	2%*
C.	Communications with administration	48%	50%	2%*
D.	Communications/interchange with students	33%	65%	2%*
E.	Communication with other workgroups	33%	67%	0%
F.	Other	—	—	—

4. Please list the three (or more) most valuable outcomes of your circle from your viewpoint. (Respondents' comments follow.)

- Working together to achieve a common goal.
- Keeping a light attitude toward the task.
- Renewed interest in the academic system as a whole.
- Opportunity to examine course content not in your area.
- Interaction among colleaques.
- Better communications, teamwork.
- Students better satisfied with new lab content.
- Lab upgraded, learned strengths (and weaknesses) of some of my cohorts.
- Forced regular meetings, increased work accomplished.

Improving courses, better communciation among instructors, standardizing procedures among instructors.
Getting to know people in circle, and how they react.
Closer relationships among personnel.
Better chance to express viewpoints.
More and better communication, dialog with faculty.
Increased awareness of computer's impact.
Realization of need to work more diligently at goal setting and achieving.
Freer discussions concerning problems QC has dealt with.
The group is gaining a sense of identity.
Meetings give us a chance to discuss problems.
Group feels good about the special attention they're getting.
Appreciation of special work problems of those within the group.
Improved personal relationships of those in group.
Increased confidence in worth of QC project.
Telephone and noise level problems solved.
Commitment to achieving groups improvement goals.
Communication, cooperation and teamwork have improved.
People like themselves better.
Better understanding of what is possible.
More individual involvement.
Sharing information within group.
Common goal on projects seems to bring our group closer together.
Dedication to the QC makes us take the time to identify and solve problems.
A forum for equal input by members, regardless of position within whole group.
Instructors becoming more concerned and aware of lab operations--purpose, operation, resources.
Staff development. Increased computer literacy.
Better understanding of the workload of each person.
Willingness to help each other more.
Sense of need to solve problems and implement solutions as quickly as possible.
Ability to set priorities better.
Sharing honest opinions.
Setting priorities as a group.
Look at problems more objectively.
QC helped get the support of our supervisor.
Increased our involvement.
We've already achieved some of our goals.
Time for thinking/considering problems we formerly did not take time to address properly.
Understanding each others problems.
Solution of some on-going problems.
Improved trust and communication have been valuable to us.
I sense an improvement in the "spirit" of the group.
Better communication, teamwork.
Clearer understanding of each member of the group.
I know who my supervisor is.
I know what job has to be done. Better communication.
Setting goals.
Identifying problems.
Cooperation within group.
Able to identify problem areas better and quicker.
Increased communication with students.
Better problem solving due to goal setting process.

- Better problem identification, goal setting/prioritizing; better data collection and analysis. More consensus.
- Better communiction with administration.
- Problems solved through group cohesiveness.
- Brainstorming gets everybody's ideas out.
- QC is an organized process to pursue solutions to problems.
- Helps put problems in perspective as to their importance.
- More opportunity to work with administration through data collection and presentations.
- Better system for identifying problems.
- More complete disucssion of problems, better communication.
- QC is a vehicle to address the need for trust and openness.
- The people-building philosophy of helping others grow and not fingerpointing.

5. Please list the three (or more) most serious problems you experience or observe with the process. (Respondents' comments follow.)

- No problems.
- In our group I haven't observed any serious problems.
- No real serious problems.
- NA
- I see no serious problems other than the difficulty of implementing recommendations.
- Coping with other people's problems.
- Presence of supervisor made some members uncomfortable. Some members feel no matter what the group recommends it will go unnoticed by upper management.
- It's important for people to feel it's really a voluntary commitment.
- Oversensitivity of some members if their particular problem is not chosen.
- Tendancy on part of some to take as criticism if problem is identified in area where they are responsible (think on-going experience with QC will help).
- Leader must keep some members from monopolizing "brainstorming" ideas.
- Leader must keep members from personal "gripe session."
- None at present.
- One member needs to be drawn into the discussion more.
- There are factions within group--though they are not as apparent now as earlier.
- The group is getting stale. May disband for a while.
- Members felt pressure to participate because of our small staff.
- Too little time.
- There is still a lack of trust among some individuals and among workgroups and administration.
- Finding a good time for everyone to meet.
- Hard to get time to meet and work on goals.
- More vocal individuals tend to dominate.
- Time consuming for leader.
- One member withdrew because the group decision was not to his liking.
- Distinguishing between department meeting and QC.
- First circle too large, too much wasted time.
- Attempt to change areas over which we have no control.
- Lack of confidence that QC will really change the administration.
- Straying from QC objective.
- Lose momentum during breaks.
- The orginal purpose has been accomplished, yet administration is using QC for further assignments.

- Lack of resolution of a personnel problem has caused frustration.
- Not really voluntary, too structured.
- Not always as democratic as its supposed to be.
- Need for continued encouragement at all levels to fully realize the value of QC.

6. Do you recommend continuation and expansion of QC processes among volunteer workgroups?
Yes 90% No 10%

*Represents a single respondent

It should be noted that a "no change" response does not necessarily imply an undesirable condition. Several respondents checked "no change" but wrote in comments such as "already good." Note also that only one person of fifty respondents perceived worsened conditions as a result of the circle. Ninety percent of the respondents (100 percent of the leaders) recommended continuation and expansion of quality circles among volunteers.

Implementation Problems

Primary implementation problems encountered included:

(1) Initial skepticism about quality circle applicability. Because of its Japanese and industrial origins, a number of people questioned the applicability of the process, thinking it only applied to factory assembly lines. As more people learned the underlying philosophy and experienced the structure and techniques in workshops, skepticism diminished.

(2) Unwillingness to believe that participation was really voluntary. In a few workgroups, some members perceived subtle pressure to joint the circle, although their leaders took great pains to assure them that participation was completely a personal choice.

This was not a problem in most workgroups and is apparently related to the level of trust previously enjoyed in the group. This problem also seemed to diminish as the program matured and has not appeared at all in the circles formed most recently.

(3) Highly educated members. Most professional circle members have advanced degrees. This speeds training in techniques, but it sometimes contributes to philosophical and semantic hairsplitting which slows progress. The circles established in "blue collar" areas generally seem slightly more efficient at deciding on needed projects and getting them underway.

(4) End-of-term slowdown. Instructor circles had a tendancy to skip meetings during the end-of-term grade rush and during class breaks. In some cases little harm has resulted; in others there has been significant loss of momentum. This slowdown has also occurred in some non-instructor circles during their peak load period.

(5) Lack of budget flexibility. State budget regulations severely restrict a workgroup's ability to redirect its funds. This may thwart cost-cutting motivation because money saved in one line item can be used in other ways only with difficulty if at all. Moreover, funds to support implementation of circle projects may be unavailable until the next budget year, if at all.

(6) Developing ownership in the administrative line. Understanding of the basic circle process and support for this project by CPCC administrators was excellent. The difficulty lay in changing the view from support for someone else's project to overt ownership and encouragement of circle philosophy and practice as a part of their own responsibility for improving leadership, process, and product. This is in no way an indictment of the administration. They have honored their commitment fully. It merely reflects the hope that the initiative for fostering quality circle philsophy and process will shift from project leaders to managers at all levels.

(7) Facilitator training. In an ideal situation, project facilitators would have been trained specifically as facilitators prior to beginning the project. The budget did not permit that, however, and we were self-taught. It was only near the end of the project year that an unexpected amount of institution funds permitted the project director to get professional training as a facilitator. He then persuaded the consulting firm to permit Don Shepherd and Doris McIlwain to attend the training at no charge. Project funds were available for Doris' travel, but Don (who went later) paid his own travel costs. The training convinced us that we had made no major errors in initiating the program. But it would

have been a great advantage to have had the training at the beginning. (See Appendix G.)

(8) Unsuccessful attempts at circle formation. Of the workgroups that attempted to form circles, only two did not succeed to the completion of a project. These two groups were led by the same supervisor. Both were formed early in the program. Two major factors appear to have influenced the outcome: (1) The leader's style made it extraordinarily difficult to relinquish the agenda to the group; (2) Facilitation skills at that stage may have been inadequate to the special challenges involved. Ending the circles did not cause ill will in either case, however, and several positive aspects were cited by the leader.

Dissemination Activities

From the beginning an important objective of this project was to share quality circle information widely, especially among educators and service organizations. Dissemination activities completed during the project are listed on the next page.

More than 1,300 people attended the sessions listed above prior to the project termination date (November 9, 1982). At least 1,700 people have attended the forty sessions listed. More than 5,000 copies of the project brochure (Appendix H) have been disseminated. Requests for information were answered for more than 100 community colleges, universities and public

	Activity	Group/Location	Date	By Whom
1.	Conference Presentation	N.C. School Counselors Association (Winston-Salem)	11/81	Moretz
2.	QC Interest Group Meetings	40 Interested People (Charlotte)	8/81; 11/81	Moretz
3.	Presentation	Occupational Research Advisory Committee (Raleigh)	11/81	Moretz
4.	Workshop Session	J. A. Jones Construction Company (Charlotte)	12/81	Moretz
5.	Overview Session	First Union National Bank (Charlotte)	2/82	Moretz
6.	Presentation	Lions Club (Cornelius)	2/82	Moretz
7.	Paper Presented/Published	IAQC* (St. Louis, Missouri)	3/82	Moretz
8.	Article Published	Quality Circles Digest	3/82	Moretz
9.	Seminar for Staff	N.C. Department of Public Instruction (Raleigh)	3/82	Moretz
10.	Seminar for Staff	Guilford Technical College (Jamestown)	3/82	Moretz
11.	Conference Presentation	N.C. Learning Resources Association (Winston-Salem)	4/82	Moretz
12.	Paper Presented (forum)	American Association of Community and Junior Colleges (St. Louis, Missouri)	4/82	Moretz
13.	Seminar	Appalachian State University (Charlotte Cluster—Charlotte)	4/82	Moretz
14.	Workshop; Seminar	Appalachian State University Faculty/Staff (Boone)	4/82	Moretz
15.	Conference Presentation	American Society for Public Administrators (Greensboro)	4/82	Moretz
16.	Conference Presentation	N.C. Placement Association (Asheville)	5/82	Moretz
17.	Workshop	Appalachian State University Food Services Division (Boone)	5/82	Moretz
18.	Workshop Session	J. A. Jones Construction Company (Charlotte)	5/82	Moretz
19.	Presentation	Charlotte Drug Education Center (Charlotte)	5/82	Moretz
20.	Seminar	Appalachian State University Cluster (Winston-Salem)	5/82	Moretz
21.	Seminar	N.C. Department of Community Colleges Staff (Raleigh)	6/82	Moretz
22.	Seminar	N.C. Medical Records Association (Charlotte)	6/82	Moretz
23.	Workshop	Sumter Technical College (Sumter, South Carolina)	6/82	Moretz
24.	Workshop	Piedmont Triad Council of Governments (Greensboro)	6/82	Moretz
25.	Television Panel	University Forum—WSOC-TV (Charlotte)	7/82	Moretz

*International Association of Quality Circles

	Activity	Group/Location	Date	By Whom
26.	Workshop	Vocational Teachers; Wayne County School System (Goldsboro)	7/82	Moretz
27.	Seminar	League for Innovation in the Community College (San Diego, California)	7/82	Moretz
28.	Seminar	Anson Technical College (Wadesboro)	9/82	Moretz
29.	Presentation	Professional Development Instructional Conference (N.C. Department of Community Colleges) (High Point)	10/82	Moretz
30.	Presentation	PDI Haywood Technical College	10/82	Shepherd
31.	Presentation	PDI Mitchell College	10/82	Shepherd
32.	Presentation	PDI Edgecombe Technical College	11/82	Moretz
*33.	Conference Presentation	College Food Service Association (Atlanta, Georgia)	11/82	Moretz
34.	Paper Presented	Association of Educational Communications and Technology (AECT) (New Orleans, Louisiana)	1/83	McIlwain
35.	Presentation	Charlotte Social Services Supervisors (Charlotte)	2/83	Moretz
36.	Presentation	American Society for Public Administration Charlotte Chapter (Charlotte)	2/83	Moretz
37.	Paper Presented/Published	IAQC (Memphis, Tennessee)	4/83	Moretz
38.	Workshop	Area Vocational Education Directors (Jacksonville)	4/83	Moretz
39.	Seminar	Maryland State Registrars Organization (Columbia, Maryland)	4/83	Moretz
40.	Article Published	Innovation Abstracts (University of Texas) NISOD	4/83	Moretz

*Project termination date

schools. More than 250 colleges and schools were represented by those attending the workshops and presentations listed above.

V. CONCLUSIONS AND RECOMMENDATIONS

The project experience and continued review of the quality circles literature suggest the following conclusions and recommendations.

Conclusions

(1) Quality circles philosophy, structure, process and training materials combine to create a workable approach to implementing workgroup goal setting, problem identification and problem solution in a community college.

(2) Persons selected to coordinate the program and facilitate circles must have excellent communications skills, integrity, and credibility with administration, faculty and staff.

(3) Circle programs should begin only after careful planning, study of the literature by potential leaders, and managers, and training for circle facilitators.

(4) Participation should be voluntary. After several years of successful growth in the organization, it may be feasible to adopt the process and philosophy as "the way we do business" and train all workgroup leaders and employees to work as teams of problem solvers. Starting that way, however, would be impossible in most organizational environments.

(5) Key principles of enhancing self-esteem; focusing on issues, goals and problems rather than personalities; and ensuring a next step are fundamental components to be incorporated into workgroup conduct and leadership style.

(6) The "people-building" philosophy itself is one of the most powerful aspects of the quality circle

process. Because it is a component of the implementation process, the facilitator has a forum for seeking commitment from management and employees to enhance the self-esteem of others by providing opportunities for achievement, recognition, involvement, learning, responsibility and open communication. This philosophy encourages refraining from gossip and fingerpointing. It fosters the development of trust. When people commit to such conduct, and then systematically apply effective problem solving and communication processes, the results are powerful.

(7) Brainstorming, cause and effect diagramming and data collection and analysis are the most frequently used and most effective circle techniques employed in CPCC circles.

(8) The careful compilation and sharing of circle minutes and action items is a key factor in circle effectiveness. This helps ensure steady systematic progress toward the group's goals.

(9) Well-trained facilitators, meeting with each circle during its first project cycle, greatly enhance the prospect of circle success. Their goal, however, must be to facilitate, not dominate, and to work every day to foster ownership of the circle by members, leader and management.

(10) Community colleges can benefit greatly from quality circle implementation. The process works there

as well as in industry. Moreover, community colleges can provide valuable training services for business and industry in quality circles processes. Employing the process in-house will enhance the quality and credibility of this outreach. Finally, community colleges can improve the employability and effectiveness of their students by including instruction in quality circle processes in occupational curricula.

Recommendations

(1) North Carolina Community College System institutions should be encouraged to consider adopting quality circles philosophy and processes as a part of their management routine.

(2) Training for quality circle facilitators and community college administrators should be provided in the western, piedmont, and eastern regions of the North Carolina Community College System (see Appendix I).

(3) After implementing their own quality circles programs in-house, system institutions should develop and offer credible training programs in quality enhancement through employee involvement for business and industry. These programs can become as important and beneficial as high-technology offerings. Their content should be available to all students, with internships available in occupational instructional programs.

(4) Administrators considering quality circle implementation should study the philosophy and process thoroughly

through the current literature and background reading in Mazlow, Herzberg, McGregor, Likert, Ouchi, etc. A program should be implemented only when it's philosophical integrity can be maintained.

(5) The implementation process should place major emphasis on the people-building philosophy and on the pursuit of high quality through employee involvement.

(6) Generally, the advisory committee and circles themselves should not exceed ten members. Circles of five to eight members seem to function best.

(7) Circle minutes should be rigorously maintained (action items clearly set out, and shared with non-members in the workgroup and with the manager to whom the circle leader reports (Appendix J).

(8) Circles should be encouraged to report their progress face-to-face with management at least three times per year. Management should use these meetings to review goals, share problems facing the institution and to show appreciation and encouragement for member's efforts.

(9) Administrators should demonstrate their leadership by employing quality circle philosophy and processes with those reporting to them and with task groups they chair.

(10) Community Colleges should consider using existing quality circles training materials rather than developing their own. Materials and training available

from Productivity Development Systems (Appendix K) are particularly well suited for educational institutions as well as industry.

Community colleges should take a leading role in encouraging participative management strategies that involve employees at all levels. They should employ those strategies themselves; they should provide experiential training for students; and they should develop training programs for business and industry.

Numerous American industries have lost their competitive edge, especially against Japanese firms. In many Japanese companies, 65 to 70 percent of the workforce is routinely involved in identifying and solving quality problems. For example, in 1981, Bridgestone Tire's 35,000 employees contributed more than 600,000 suggestions for improving the product and process, and 91 percent of those suggestions were implemented. Many other Japanese firms have similar records. But no American company comes close. Instead, most American companies operate under the assumption that only the 15 percent called "management" can solve problems.

That is only one of several fundamental changes that must be made if we are to compete in world markets. But it is an area of needed change that community colleges can serve well. The "people's colleges" can help to tap the people's brainpower and creativity to improve product and worklife quality and the competetive position of American industry. It is difficult to imagine a more important challenge for community colleges.

SELECTED BIBLIOGRAPHY

Amsden, Davida M. and Robert T. Amsden. QC Circles: Applications, Tools and Theory, American Society for Quality Control (ASAC), Milwaukee, WI, 1976.

Burck, Charles G. "Working Smarter," Fortune, June 15, 1981 (first of a series of excellent articles).

Cole, Robert E. "Will QC Circles Work in the U.S.?," Quality Progress, July, 1980.

Courtright, William E. "Hughes Circles: An Update," The Quality Circle Journal, (IAQC, Midwest City, OK), August, 1981.

Crosby, Philip B. Quality Is Free: The Art of Making Quality Certain, McGraw-Hill, 1979.

Deming, W. Edwards. "Improvement of Quality and Productivity Through Actions by Management," National Productivity Review, Winter, 1981-82.

Falvey, Frank. "To Raise Productivity, Try Saying Thank You." Wall Street Journal, Monday, December 6, 1982.

Gill, Penny. "Families Matter," Stores, March, 1982.

Herzberg, Frederick. The Managerial Choice: To Be Efficient and to Be Human, Richard D. Irwin, Inc., 1976.

Johnson, Donald. "Quality Circles Put Workers in Charge of Their Productivity," Modern Healthcare, September, 1981.

Juran, J. M. "International Significance of the QC Circle Movement, " Quality Progress, November, 1980.

McGregor, Douglas. The Human Side of Enterprise, McGraw-Hill, 1960.

Main, Jeremy. "Westinghouse's Cultural Revolution," Fortune, June 15, 1981.

Mazigue, Mignon. "The Quality Circle Transplant," Issues and Observations, Center for Creative Leadership, (Greensboro, NC), May, 1981.

Moretz, H. Lynn. "Quality Circles at Central Piedmont Community College," Quality Circles Digest, (Red Bluff, CA), March, 1982.

Moretz, H. Lynn. "Teampower and Brainwork: Quality Circles at Central Piedmont Community College," 1982 Transactions, International Association of Quality Circles, (Midwest City, OK).

Moretz, H. Lynn. "QC Teams in Education: Experience and Prospects." 1983 Transactions, International Association of Quality Circles (Midwest City, OK), 1983.

Moretz, H. Lynn. "Quality Circles: Involvement, Problem-Solving and Recognition." Innovation Abstracts, National Institute for Staff and Organizational Development (NISOD), University of Texas, Austin, TX, April 15, 1983.

Ouchi, William G. Theory Z: How American Business Can Meet the Japanese Challenge, Addison-Wesley, 1981.

Pascale, Richard T. and Anthony G. Athos. The Art of Japanese Management, Simon and Schuster, 1981.

Patchin, Robert I. "Is Respect the Key?," The Quality Circles Journal, November, 1981.

Patchin, Robert I. "Stairway to the Stars, or ...," The Quality Circle Journal, February, 1982.

Shaw, Robert J. "Tapping the Riches of Creativity Among Working People," Management Focus, (Peat Marwick), September/October, 1981.

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APPENDICES

A. "Quality Circles" Description from Quality Circles Digest.

B. "Quality Circles at Central Piedmont Community College." Article from March, 1983, Quality Circle Digest.

C. People-Building Philosophy of Quality Circles

D. How a Quality Circle Operates; Basic Circle Process

E. Leader Training Workshop Agenda

F. Invitation to Leader Training Workshop

G. Major Quality Circles Consulting/Training Firms

H. Quality Circles in Education Brochure

I. Proposal for Quality Circles Facilitator Training for the North Carolina Community College System

J. Quality Circle Minutes Form

K. Brainstorming, Cause and Effect Diagramming, Pareto Analysis, 10 Keys to Successful Quality Circles

QUALITY CIRCLES

A Quality Circle is a small group of people from the same work area that voluntarily meets on a regular basis to identify, analyze, and solve problems of various types in that area.

In Japan in 1961, Dr. Kaoru Ishikawa and the Union of Japanese Scientists and Engineers (JUSE) tied the theories of the behavioral scientists together with the quality sciences introduced to devastated post-war Japan by Drs. Deming and Juran, and others. The result was Quality Circles (commonly known in Japan as Quality Control Circles). The first Circles were registered with JUSE during May, 1962. The phenomenon grew in Japan to involve millions of employees. During the 1970s, it spread to many Western World nations. It is predicted to penetrate deeply into most parts of the world during the 1980s, particularly the industrialized nations.

Ideally, members of a particular Circle should be from the same work area, or do similar work, or interact closely to get a job done, so that the problems they select will be familiar to all of them.

Membership is strictly voluntary. No one is required to participate and no one is kept out.

Some of the objectives of Quality Circles are to:

- Reduce errors and enhance quality
- Inspire more effective teamwork
- Promote job involvement
- Increase employee motivation
- Create a problem-solving capability
- Build an attitude of "problem prevention"
- Improve company communications
- Develop harmonious manager/worker relationships
- Promote personal and leadership development
- Develop a greater safety awareness

A Quality Circle program is made up of four interrelated parts: The members themselves; Circle leaders; the facilitator (program coordinator) and; the steering committee.

There is no limit to the number of Circles in a given area, even if all the people in the area do the same work. As many Circles are created as are needed to accommodate all those who want to join.

Most Circles meet for an hour each week, but this varies from company to company according to need.

A Quality Circle goes through several steps:

1. Identification of a number of problems
2. Selection of the one with the highest priority
3. Collection of required data
4. Analysis of the problem using techniques such as check sheets, Pareto analysis, stratification, histograms, control charts, scatter diagrams, cause-&-effect problem analysis, and others
5. Selection of a recommended solution
6. The presentation to management

Most Circles are urged to stick to quality issues. However, any problem that directly affects work or environment may be fair game, provided it's not within the purview of the union.

Each Circle has its own code of conduct and meetings are conducted in a businesslike manner.

When they understand the proper operation of Quality Circles, union officials not only don't object to them, they often become enthusiastic participants.

Circle members receive training during their first few meetings (usually 8 to 10). Leader training takes approximately three days. Facilitators normally receive at least four or five days of training. Well in excess of 80% of Circle recommendations are approved by management. Some organizations report 100%.

A three-to-fifteen member steering committee, which may be comprised of managers, top executives, a union representative, and the facilitator, formulates the overall objectives, draws up the implementation plan, and plans the rate of expansion.

The facilitator trains Circle leaders and acts as backup to them during member training. The facilitator attends most Circle meetings and is the link between Circles and the rest of the organization.

The supervisor is most often the Circle's first leader. The Quality Circle concept gains quicker acceptance when it fits into the existing organizational structure, in which the supervisor already has a leadership role. He or she acts as a member of the Circle, voting and analyzing problems equally with the rest, but holds main responsibility for training members and keeping members involved and on track.

When Circles have run out of immediate problems they set their sights on problem prevention and productivity improvement.

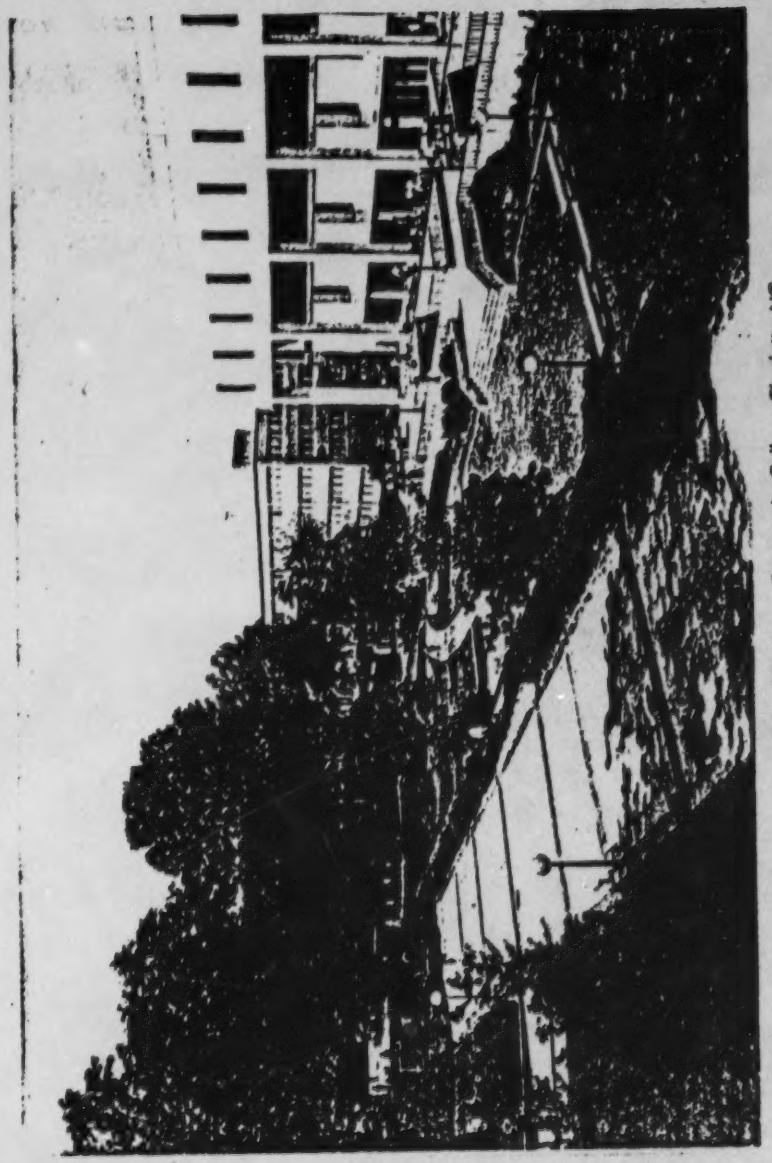
In the management presentation, the Circle members stand up before the managers and take turns explaining the Circle's analysis of the chosen problem and the solution it recommends. They use the original charts drawn up during analysis. The management presentation tends to serve as a powerful stimulus to the Circle members, as well as to management.

Members of the Media Production Quality Circle are (L to R): JoEllen Wade; Mike Rominger; Tom Covington; Don Ambrose, leader (standing); Doris McIlwain; Diane Davis; and Lynn Moretz, facilitator.

Will Quality Circle concepts work in education? Yes. In fact, they already are. After eleven months of investigation, study and planning, a pilot Quality Circle program was implemented in the Central Piedmont Community College (CPCC) Media Production department in December 1980. The Circle, composed of six media professionals held its first meeting in January 1981. Believed to be the first Quality Circle in an American educational institution, this group learned and uses classic Circle techniques including: Brainstorming, cause-and-effect (fishbone) diagramming, Pareto concepts, various data collection and analysis processes, and management presentations. In addition to training in group problem solving, the CPCC Quality Circle philosophy seeks to enhance mutual respect, open communication and trust within the group and throughout the organization.

Quality Circles in Education Project

The enthusiasm, problem solving success and obvious potential of the Media Production pilot Circle led to a grant proposal to implement Quality Circles throughout the college. Funded in July 1981 by the Occupational Education Research Office, Division of Planning and Research Services, North Carolina Department of Community Colleges, this grant provides for Circles in instructional, operational, and administrative



Campus View, Central Piedmont Community College, Charlotte, NC.

functional areas.

Principal objectives of the Quality Circles in Education grant at CPCC are:

1. **Orientation:** To orient all top, middle, and first-line management to Quality Circle concepts, their effectiveness in industry, and their potential for education.
2. **Advisory Committee:** To establish an advisory committee which will develop and recommend Quality Circle policy to top level administration. This committee will include campus-wide representation.
3. **Facilitators:** To provide two or more resource persons trained to assist in Circle formation, training, and facilitation.
4. **Circle Leaders:** To train six or more Quality Circle leaders.
5. **Initial Circles:** To implement six or more Quality Circles including three or more in occcupational education departments and others among administrative and operational areas.
6. **Training Materials Development:** To produce audiovisual and print instructional materials specific to Quality Circles in education for implementation of Quality Circles subsequent to the project.
7. **System-Wide Awareness:** To build an awareness among North Carolina Community College System educators during the project year of the Quality Circle process and the project's role in adapting that process to educational institutions.
8. **Evaluation:** To assess the effectiveness of the project organization and procedures, during, and at the end of the project.
9. **Plan For System-Wide Implementation:** To provide a written plan at the end of the project year for implementing Quality Circles in interested System institutions. This plan will include a description of regional workshops for orientation and detailed instruction for implementing Quality Circles.

Results to Date

To date (February 1982) the management orientation has been completed, the Advisory Committee formed, facilitators (two in addition to the project director) selected and trained, and Circle leader training provided to one group of 27 volunteer first-line supervisors.

Ten Circles are now operating at the college. They include three instructional departments: Advancement Studies (two Circles), Business Administration, and Medical Office and Records. Other Circles include two off-campus learning centers (North Area and West Area), as well as the Registration/Data Entry staff, Information/Admissions staff, and the 13-member Counseling department "Baker's Dozen" Circle. Almost 80 staff members are participating in Circles. Upon completion of

Media Production Quality Circle members (L to R): Mike Rominger; Doris McIlwain; JoEllen Wade; Don Ambrose, leader (foreground); Lynn Moretz, facilitator; Daine Davis; and Tom Covington.

initial process evaluation, Circles will be formed in other work groups now on a waiting list. Of course, participation at all levels is completely voluntary.

The original pilot Circle (Media Production) has completed several projects focused on improving communication with and services to client departments. As a result, a data base of services rendered has been developed as a benchmark, a user survey developed, and pilot tested, and a full survey conducted and compiled. A number of problems identified by users have already been corrected and communication has improved significantly. Follow-up projects are being outlined in response to the survey data.

The North Area Learning Center Circle is addressing poor service quality that results from its present phone system and has scheduled a management presentation for early March.

Other Circles are working on projects involving learning labs, student orientation and foreign student registration.

We do not see Quality Circles as a panacea. They are viewed as an integral component in a management philosophy which encourages participation, greater quality consciousness, improved planning, coordination and productivity, and more effective human resource management. Circles help people organize to achieve their goals. And they provide recognition for that achievement. Educational Quality Circles may seldom achieve the huge dollar savings sometimes reported in industry, but without question they can help improve services and communication, boost morale, and increase productivity.

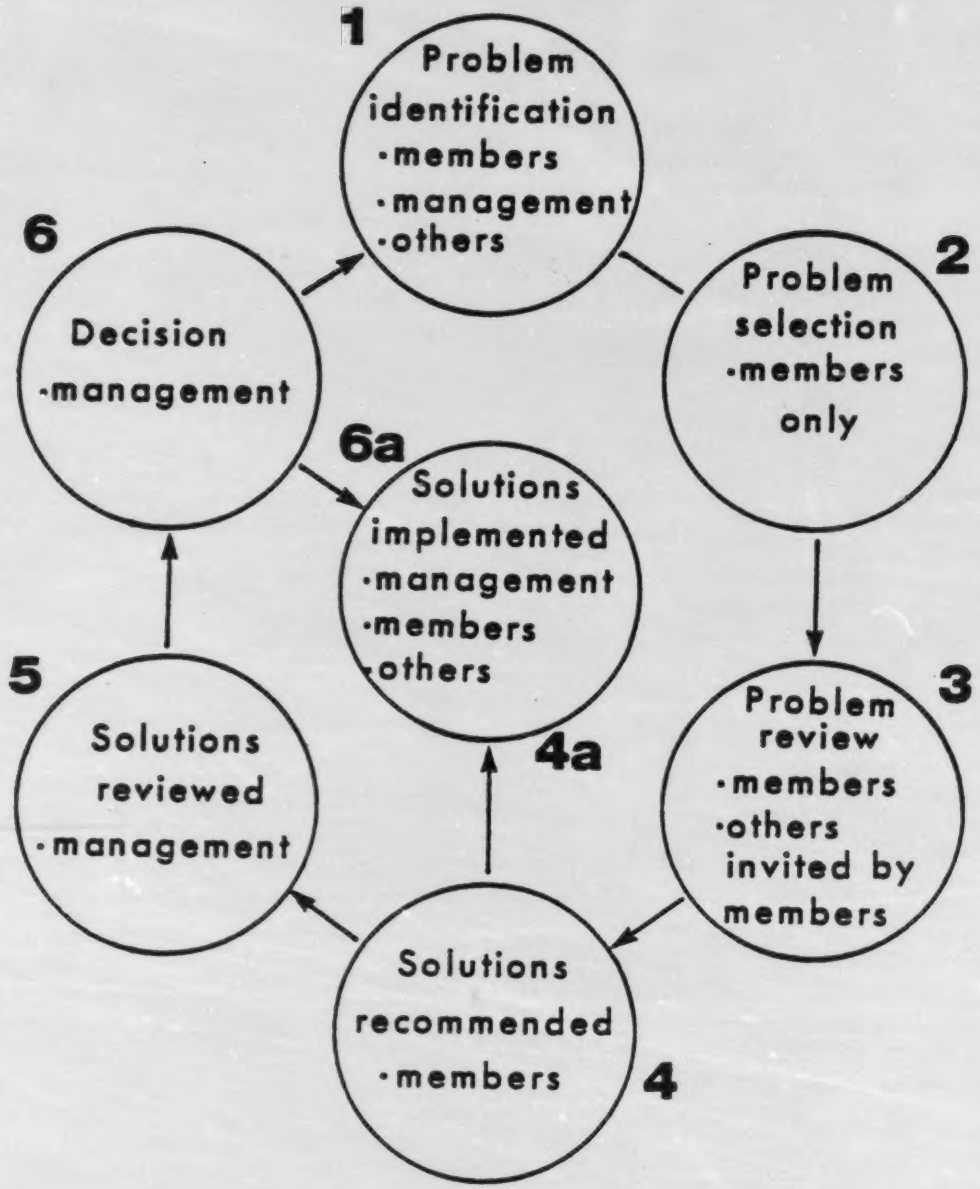
APPENDIX C

PEOPLE BUILDING PHILOSOPHY

- Managers Recognize Workers' Expertise and Seek Input
- Provide Opportunities to Achieve
- Recognize Achievement
- Encourage Creativity
- Avoid Gossip and "Finger Pointing"
- Avoid Criticism of Persons
- Group Members Help Each Other
- Encourage Trust and Openness
- Provide New Learning--Growth Opportunities
- Foster Mutual Respect

Moretz--10/82

How A Quality Circle Operates



10/82

BASIC CIRCLE PROCESS

1. IDENTIFY GOALS/PROBLEMS
   - brainstorming
   - ideas from non-members
2. SET PRIORITIES
   - discussion/voting/consensus
   - decision grid
3. SELECT PROBLEM (PROJECT)
   - pareto analysis/consensus
4. PREPARE CAUSE AND EFFECT DIAGRAM
   - focused brainstorming
5. COLLECT DATA
   - checksheets
   - surveys, etc.
   - process flow
   - function analysis
6. ANALYZE DATA
   - pareto charts
   - histograms
   - time study
   - cost/benefit
7. PREPARE RECOMMENDATION
   - based on data
   - "win-win" philosophy
8. MAKE MANAGEMENT PRESENTATION
   - all members participate
   - communication
   - recognition
   - "win-win"

10/82

APPENDIX E

Agenda
Quality Circle Leader Workshop
Pease Conference Room
September 21-22, 1981, 1:00 - 5:00 PM

Monday, September 21

1:00 - 1:45	Introduction . Overview of workshop . QC audiovisual program . CPCC implementation	Lynn Moretz
1:45 - 3:15	Brainstorming . Explanation of process . Brainstorming groups . Priorities by consensus . Discussion of process	Doris McIlwain
3:15 - 3:30	Break	
3:30 - 5:00	Cause and Effect Diagramming . Explanation of process . Group practice . Discussion of process . Incubation	Don Shepherd

Tuesday, September 22

1:00 - 2:00	Cause and Effect Diagramming . Updating cause and effect diagram . Priorities by decision grid . Discussion of process	Don Shepherd
2:00 - 3:15	Data Collection and Pareto Analysis . Documenting problems; Benchmark data . Pareto concepts . Group practice	Lynn Moretz
3:15 - 3:30	Break	
3:30 - 4:00	. Comparing Pareto Charts . Discussion of Process	
4:00 - 4:45	Group Effectiveness . Guidelines . Concepts . Characteristic problems . Measuring growth	Don Shepherd
4:45 - 5:00	Wrap-Up and Evaluation	Doris McIlwain

AGENDA
QUALITY CIRCLE WORKSHOP
PEASE CONFERENCE ROOM
March 22-23, 1982

Monday, March 22

8:30 - 9:15	Introduction . Overview of Workshop . Quality Circles in Education... Here and Elsewhere . "Teampower and Brainwork" . Motivation Factors	Lynn Moretz
9:15 - 10:15	Group Effectiveness . Concepts and Guidelines . Characteristic Problems . Measuring Growth . Application During Workshop	Don Shepherd
10:15 - 10:30	Break	
10:30 - 12:00	Identifying Goals and Problems . Non-Member Sources . Brainstorming . Group Practice . Determining Priorities (Decision Grid) . Discussion of Process	Doris McIlwain

Tuesday, March 23

8:30 - 9:35	Cause and Effect Diagramming . Explanation . Group Practice . Discussion of Process	Don Shepherd
9:35 - 9:45	Break	
9:45 - 10:30	Panel of Quality Circle Administrators . Charles Hodge, Barclays American . Ted Kratt, J. A. Jones Construction Co. . Bill Sites, IBM Corporation	Lynn Moretz, Moderator
10:30 - 11:00	Data Collection and Analysis (Overview) . Documenting Problems; Benchmark Data . Pareto Concepts . Force Field Analysis . Function Analysis . Flow Process Charting	Lynn Moretz
11:00 - 11:50	Management Presentations . Purpose . Videotape of North Area Learning Center Presentation . Discussion	Doris McIlwain

AGENDA
QUALITY CIRCLE SEMINAR
CPCC Citizens' Center
June 2-3, 1982

Wednesday, June 2

1:00 - 1:45	Introduction . Overview . "Teampower and Brainwork" . How Circles Work - Process . Why Circles Work - Motivation	Lynn Moretz
1:45 - 2:30	Group Effectiveness . Guidelines . Characteristic Problems . Application During Seminar	Don Shepherd
2:30 - 2:45	Break	
2:45 - 3:00	QC Member Reactions (Videotape)	
3:00 - 4:15	Identifying Goals and Problems . Brainstorming . Group Practice . Setting Priorities (Decision Grid)	Doris McIlwain
4:15 - 4:30	Discussion of Brainstorming/ Decision Grid Process	Don Shepherd

Thursday, June 3

1:00 - 2:15	Cause and Effect Diagramming . Explanation . Group Practice . Discussion of Process	Don Shepherd
2:15 - 2:30	Break	
2:30 - 3:30	Panel of Quality Circle Administrators . Frances Leitner, Westinghouse Electric Corporation . Martha Jenkins, Ingersol-Rand . Fred Herring, J. A. Jones Construction Company	Lynn Moretz, Moderator
3:30 - 4:00	Data Collection and Analysis (Overview) . Documenting Problems--Benchmark Data . Pareto Concepts . Force Field Analysis . Function Analysis . Flow Process Charting	Lynn Moretz
4:00 - 4:20	Management Presentations . Purpose . Videotape Excerpt	Doris McIlwain
4:20 - 4:30	Evaluation	Doris McIlwain

APPENDIX F

August 31, 1981

TO: Division/Department Heads
Program Directors
Directors
Supervisors

FROM: Lynn Moretz

RE: Quality Circle Workshop, September 21, 22, 1:00 - 5:00 PM

Many supervisors in industry and service enterprises who lead quality circles are finding that these groups can help improve communication, product or service quality, the work environment and employee morale.

You are invited to a workshop for first line supervisors who are interested in the quality circle process. This workshop will prepare you to lead a circle in your area should you and your employees so desire.

The workshop is scheduled for Monday and Tuesday afternoons, September 21 and 22, from 1:00 to 5:00 pm. Please return the enclosed response sheet to me by September 8, 1981. Hope to see you there.

Enclosure

APPENDIX G

MAJOR QUALITY CIRCLES CONSULTING FIRMS

During the project period training, materials were examined from a number of sources. Those listed below are among the most experienced at quality circle implementation.

J. F. Beardsley, President
J. F. Beardsley and Associates
International, Inc.
93 South Central Avenue
Campbell, CA 95008

Donald L. Dewar, President
Quality Circle Institute
1425 Vista Way
Airport Industrial Park
P. O. Box Q
Red Bluff, CA 96080

*Michael Donovan, President
Productivity Development Systems, Inc.
One Countryside Office Park
Suite 112
Clearwater, FL 33575

Wayne S. Rieker, President
Quality Control Circles, Inc.
Higgins and Root Building
400 Blossom Hill Road
Los Gatos, CA 95030

*While the materials from all of these consultants are acceptable, it is the judgement of the writer that those from Productivity Development Systems are outstanding, especially for use in educational institutions. The potential user should compare all of them, as well as others.

Another source of information is:

International Association of Quality Circles
P. O. Box 30635
Midwest City, OK 73140

This is a professional organization of some 5,000 members who are using and promoting quality circle concepts.

APPENDIX H

DR. H. LYNN MORETZ, DIRECTOR
Quality Circles and Productivity
CPCC
PO Box 35009
Charlotte, North Carolina 28235-5009

Project Site:
Central Piedmont Community College
Charlotte, North Carolina

Funded by:
Office of Occupational Educational Research
Division of Planning and Research Services
N. C. Department of Community Colleges
Raleigh, North Carolina 27611

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The Problem

A vice president of one of the nation's largest and best managed firms was asked recently by a group of graduate students, "What, in your opinion, is the key issue facing American business over the next decade?" His answer....

> "The key issue will not be technology or investment, not regulation or inflation. The key issue will be the way in which we respond to one fact—the Japanese know how to manage better than we do". (Ouchi, *Theory Z: How American Business Can Meet the Japanese Challenge)*

It is no secret that a number of American industries are seriously threatened by Japanese products of exceptionally high quality. But what does that have to do with education? The problem of how to manage more effectively is no less pressing in education than in business. Educators as well as industrialists may benefit by contemplating the extraordinary commitment of Japanese employees to quality and productivity—a phenomenon largely attributable to their participation in identifying and solving quality problems.

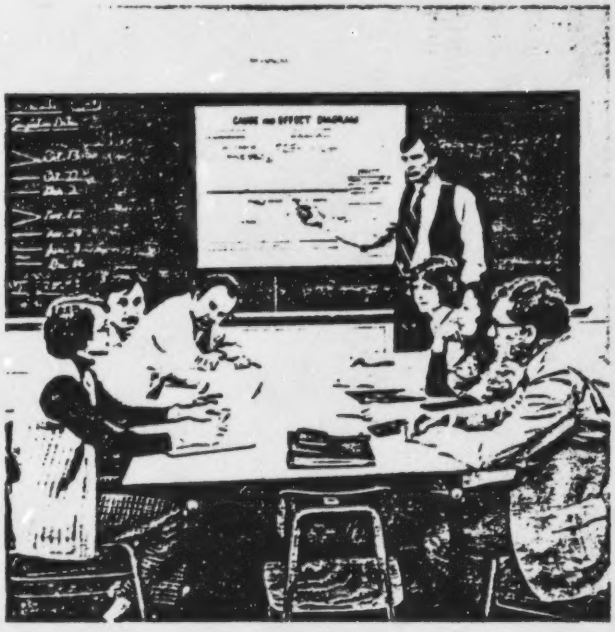
Quality Circles

A uniquely successful concept for worker participation in quality/productivity management is the quality circle, which originated in Japan in 1961. A quality circle is a small group of employees from the same work area who voluntarily meet on a regular basis to identify and analyze problems, find solutions to these problems, and work with management to implement their solutions. At least eleven million Japanese employees participate in quality circles, which, in the last twenty years have initiated, literally, tens of millions of product and productivity improvements. And it shows in the marketplace.

Quality circles were implemented in America in 1974, but growth was slow until 1978. As more American business teams toured Japan, growth accelerated here. Today at least 700 American companies have quality circle programs, and expansion continues.

Quality Circles at Central Piedmont

Will quality circle concepts work in education? Yes. In fact, they already are. After eleven months of investigation, study and planning, a pilot quality circle program was implemented in Central Piedmont Community College's Media Production department in December, 1980. The circle, composed of six media professionals held its first meeting in January, 1981. Believed to be the first quality circle in an American educational institution, this group learned and uses classic circle techniques including brainstorming, cause and effect (fishbone) diagramming, Pareto concepts (separating the critical few from the trivial many), various data collection and analysis processes and management presentations. In addition to training in group problem solving, the quality circle philosophy seeks to enhance mutual respect, open communication and trust within the group and throughout the organization.



Quality Circles

A small group of employees (4-12) from the same work unit who voluntarily meet on a regular basis (usually an hour per week) to identify and analyze problems affecting the quality of goods or services they produce, to find solutions to the problems, and to cooperate with management in implementing the solutions.

Key characteristics:

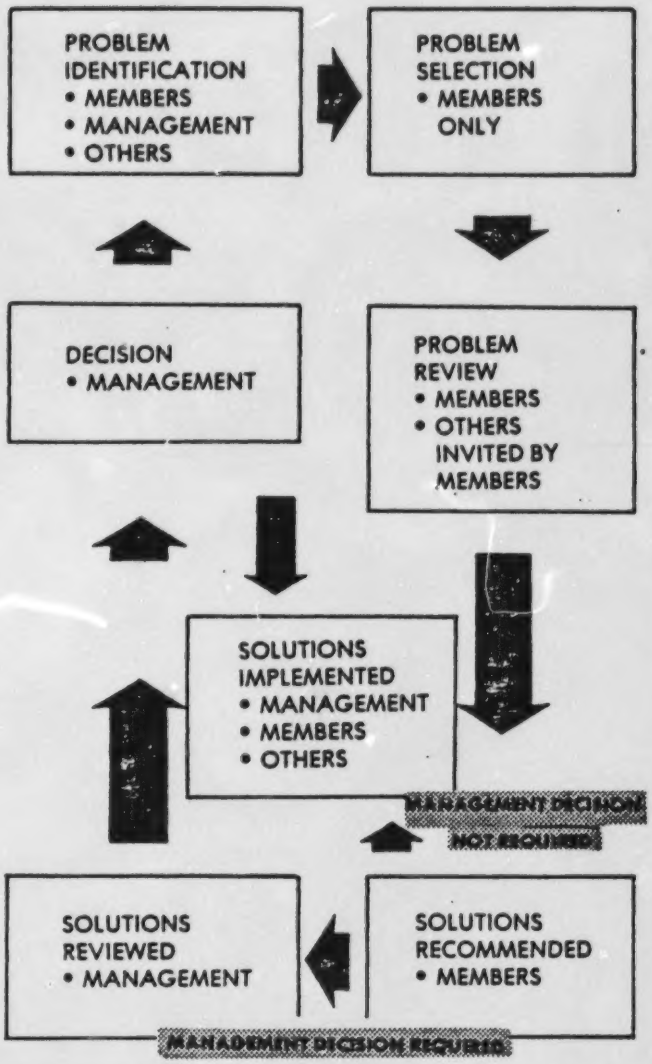
- Membership is voluntary
- Immediate supervisor is circle leader—no new organizational structure created
- Members are trained in problem identification/analysis/solution techniques
- Problems to be addressed are chosen by the circle
- Priorities are determined by the circle
- Creativity, open communication and trust are encouraged; negative criticism, gossip, finger-pointing are ruled out
- Formal presentations to management detailing recommended solutions are made as the circle determines readiness

Techniques often used:

- Brainstorming
- Cause and Effect (fishbone) Diagramming
- Various data collection and analysis processes
- Pareto analysis (to identify the "critical few" from the "trivial many")
- Function and process analysis
- Management presentations involving all members

Carefully implemented circle programs often result in benefits such as improved quality, more effective communication, reduced costs, higher morale, reduced absenteeism and turnover, increased commitment to the organization's goals, and improved productivity.

How a Quality Circle Operates



Quality Circles in Education Project

The enthusiasm, problem solving success and obvious potential of the Media Production pilot circle led to a grant proposal to implement quality circles throughout Central Piedmont Community College (CPCC). Funded in July, 1981, by the Occupational Education Research Office, Division of Planning and Research Services, North Carolina Department of Community Colleges, this grant provides for circles in instructional, operational and administrative functional areas.

Principal objectives of the Quality Circles in Education grant at CPCC are:

1 ORIENTATION—To orient all top, middle and first-line management to quality circle concepts, their effectiveness in industry, and their potential for education.

2 ADVISORY COMMITTEE—To establish an advisory committee which will develop and recommend quality circle policy to top level administration. This committee will include campus-wide representation.

3 FACILITATORS—To provide two or more resource persons trained to assist in circle formation training and facilitation.

4 CIRCLE LEADERS—To train six or more quality circle leaders.

5 INITIAL CIRCLES—To implement six or more quality circles including three or more in occupational education departments and others among administrative and operational areas.

6 TRAINING MATERIALS DEVELOPMENT—To produce audiovisual and print instructional materials specific to quality circles in education for implementation of quality circles subsequent to the project.

7 SYSTEM-WIDE AWARENESS—To build an awareness among North Carolina Community College System educators during the project year of the quality circle process and the project's role in adapting that process to educational institutions.

8 EVALUATION—To assess the effectiveness of the project organization and procedures, during, and at the end of the project.

9 PLAN FOR SYSTEM-WIDE IMPLEMENTATION—To provide a written plan at the end of the project year for implementing quality circles in interested System institutions. This plan will include a description of regional workshops for orientation and detailed instruction for implementing quality circles.

To date (December, 1981), the management orientation has been completed, the Advisory Committee formed, facilitators (two in addition to the project director) selected and trained, and circle leader training provided to one group of 27 volunteer first-line supervisors. Circles formed include the Media Production department, Advancement Studies department, North Area Learning Center, Counseling department, Business Administration department, Medical Office and Records department, Registration, Information/Admissions and West Area Learning Center.

Quality circles are neither panacea nor quick-fix. Rather, they must be viewed as an integral component in the management process which encourages increased participation, greater quality consciousness, improved planning, coordination and productivity, and more effective human relations/human resource management.

For more information about quality circles and this project, please contact:

Dr. H. Lynn Moretz, Director
Quality Circles and Productivity
Central Piedmont Community College
P.O. Box 35009
Charlotte, NC 28235-5009
(704) 373-6935

APPENDIX I Enclosure 3

NORTH CAROLINA DEPARTMENT OF COMMUNITY COLLEGES

Division of Planning and Research Services
Occupational Education Research Services
Raleigh 27611

1983 RESEARCH PRELIMINARY PROPOSAL APPLICATION

A. RESEARCH PRIORITY AREA: Focuses on INSTITUTIONAL RESPONSIVENESS TO INDUSTRY, but also relates to priorities no. 1 and no. 3.

B. PROJECT TITLE: Quality Circles: Training for Educators, Businesses, and Students

C. BRIEF ABSTRACT OF PROJECT: Japanese and American businesses have demonstrated that quality circles can improve quality, productivity, and morale. In 1980 Central Piedmont Community College (CPCC) began the first application of quality circles in an educational institution. As a result, the quality circle program enabled CPCC to train facilitators and leaders and implement 19 circles involving 125 people out of some 560 full time employees. This project will provide low cost instruction in quality circle philosophy and techniques for North Carolina community college educators, CPCC students, and local businesses. The goals include improved quality and productivity in educational management, increased employability for students and improved responsiveness to the needs of industry.

D. PROJECT DATES: Beginning: 9/1/83 Ending: 8/31/84 Duration: 12 months

E. PROJECTED COSTS:
$31,350

F. APPLICANT ORGANIZATION, ADDRESS, AND TELEPHONE:
Central Piedmont Community College
P.O. Box 35009
Charlotte, NC 28235
(704) 373-6703

G. CERTIFICATION OF APPROPRIATE ORGANIZATION OFFICIALS:

We certify to the best of our knowledge and belief that the information in this application is accurate and that its filing is duly authorized.

Doris McIlwain Name	Project Director, 1983-84 Title
Doris N. McIlwain Signature	4/21/83 Date
Dr. William McIntosh Name	Vice-President, Educational Planning and Evaluation Title
William A McIntosh Signature	4/21/83 Date
Name	Title
Signature	Date

QUALITY CIRCLES

TRAINING FOR EDUCATORS, BUSINESSMEN, AND STUDENTS

Need for the Project

Increasingly, educational institutions and private businesses are forced to cope with severe budget constraints. Slashed budgets and frozen salaries lead to apathy and low productivity. Administrators and managers face major questions: How can we maintain and improve morale? How can employees be enlisted enthusiastically to improve quality and productivity?

Early in 1980, a study of the quality circle process was begun at Central Piedmont Community College (CPCC), Charlotte, North Carolina. By December, the understanding and support of the college administration had been obtained and a pilot circle planned in the Media Production department. This circle, the first in an American educational institution, began meeting in January, 1981. A $22,000 grant (from Occupational Education Research Services) in July, 1981, enabled CPCC to train facilitators and leaders and implement 19 circles (125 people out of some 560 full time employees) by December, 1982.

CPCC's experience demonstrates that quality circles can generate improvements in learning conditions as well as staff morale and productivity. The process is not a "quick-fix" however; training resources, management support, time and patience are required. Recognition of the necessity to improve educational management and focus on quality is growing. More than 120 colleges and school systems have sought information from CPCC regarding quality circles in education. More than a dozen national, regional or state professional educator groups have requested presentations for members.

Quality circles are used by a growing number of companies throughout North Carolina. But many companies, because of various budgetary

reasons, cannot afford expensive consulting groups to come in and train quality circle facilitators. Since both industry and education face similar problems, quality circles form a common bond between the two. Here is an area in which CPCC can plan and effect improved responsiveness to the needs of local industry. (Appendix A gives more information about quality circles.)

Specifically, this proposal responds to the need for:

(1) An experienced credible source of low cost training in quality circle processes for the Community College System institutions. Quality circle facilitator training is now available only from consultants to industry. It costs from $700 to $1200 per person, not including travel. Furthermore, these consultants have no experience in education. Many educators think quality circles apply only to factories. CPCC's experience will provide credibility and a direct example for other educators.

(2) An experienced credible source of low cost training in quality circle processes for local business and industry. CPCC has two facilitators and the former Director of Quality Circles and Productivity (serving as a consultant to the project) who are certified quality circle facilitators and have led circles and conducted quality circle workshops over the last two years. They are also deeply involved with Charlotte's local chapter of the International Association of Quality Circles, a chapter whose membership is predominantly made up of quality circle facilitators in business and industry.

(3) Continued experimentation with quality circle processes in education. Much is yet to be learned about how best to implement programs in education so that systematic quality improvement becomes accepted as part of everyone's job.

(4) Students practiced in quality circle processes, which can increase their employability. Students are increasingly likely to be employed in jobs that involve quality circle participation or management. Knowledge of quality circle processes will increase student opportunities as more businesses develop circle programs.

Objectives

Specific objectives aimed at addressing the foregoing needs are:

(1) To provide quality circle training for personnel in Community College System institutions. The principal training need is two-fold:

(a) Orientation to the quality circle process. Short (one day or less) orientation sessions for top administrators and other interested personnel.

(b) Facilitator training. Intensive (3-4 day) workshops for individuals who will return to their institutions and implement local quality circle programs.

Although the project will be located at CPCC, the project will conduct regional (west, central, east) overview sessions and workshops to train prospective quality circle facilitators. Most participants could drive in daily for the training sessions. Experienced circle facilitators will provide credible, relevant instruction for educators that is not now available. This instruction is badly needed, as evidenced by widespread interest in improving educational management and quality.

(2) To provide quality circle training for business and industry personnel. The principal training need is two-fold:

(a) Management orientation. Short (one day or less) orientation sessions for top management.

(b) Facilitator training. Intensive (3-4 day) workshops for individuals who will return to their business and implement quality circle programs.

The project personnel will be located at CPCC and provide at least 2 (more depending on the demand from industry) orientation and facilitator training sessions throughout the year through CPCC's outreach to industry courses offered by CPCC's occupational departments. CPCC will provide an experienced, credible source of low cost training in quality circle processes for business and industry.

(3) To provide instruction for students in quality circle concepts and techniques. The continuing growth of quality circle programs in America (latest study shows more than 6000 locations) suggests that students will be more employable if they understand

quality circle processes. This project will take students chosen by the faculty who demonstrate an interest in learning about the quality circle process and provide training that will include:

(a) a 1-2 day leader training workshop.

(b) exposure to quality circle management presentations.

(c) short internships with quality circle programs in industry.

Intended Outcomes

Major outcomes expected from the project include:

(1) Brochures giving a calendar and descriptions of seminars and workshops offered.

(2) Three regional (west, central, east), one day or less, overview seminars for community college educational administrators and other interested personnel. As many as 100 participants can be accommodated. These seminars will provide participants a basis for considering quality circle feasibility in their institutions.

(3) Three regional (west, central, east), 3-4 day facilitator training workshops for community college personnel. Accommodating up to 20 participants each, these workshops could train up to 60 facilitators. There could feasibly be one facilitator trained for each of the other 57 institutions in the Community College System.

(4) Continued evaluation and learning from the CPCC quality circle program. This knowledge would be shared with educators in the other 57 institutions to aid them in any quality circle endeavors.

(5) Three (more depending on interest from industry), one day or less, management orientation seminars at CPCC for managers from business and industry. As many as 100 participants can be accommodated. These seminars will provide participants a basis for considering quality circle feasibility in their companies.

(6) Two (more depending on demand from industry) intensive (2-3 day) facilitator training workshops for business and industry personnel. Accommodating 15 partcipants each, these wrokshops

could train up to 30 facilitators. They in turn could be expected to begin circle programs in 30 different companies.

(7) Leader training and direct experience with quality circles in industry for candidates from six CPCC instructional departments (Business Administration, Engineering Technology, Secretarial Science, Nursing, Electronics Technology, Hotel/Restaurant Management). The leader training and direct experience, as described in the objectives, will significantly increase the employability of graduates and enhance their work with improvement teams.

The nation's competence depends upon the performance of its educational system. Education, as well as industry, must redesign management processes to develop and tap the brainpower of employees. Quality circle processes can do that. This project, which will generate awareness and train quality circle facilitators at a low cost, can promote systematic improvements in quality and productivity through employee involvement. Thus, the project can help meet these essential needs.

QUALITY CIRCLES

TRAINING FOR EDUCATORS, BUSINESSMEN, AND STUDENTS

Preliminary Budget

1983-84 Project Year

	Project Commitment	CPCC Commitment
Salaries:		
Project Director/Trainer (full time)	$11,000	$11,000
Facilitator/Trainer (1/2 time)	14,000	
Secretary (1/2 time)		7,000
Benefits @ 20 percent		8,600
Consultants	500	
Travel	4,300	
Materials, Supplies, Contractual Services	1,200	
Other (telephone, postage, etc.)	350	
Total	$31,350	$26,600

APPENDIX J

QUALITY CIRCLE MINUTES

CIRCLE NAME_____ MEETING DATE_____

IN ATTENDANCE:

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

MINUTES:

ACTION ITEMS:	PERSONS RESPONSIBLE:
(1)	(1)
(2)	(2)
(3)	(3)
(4)	(4)
(5)	(5)

PAGE 1 OF ____ RECORDER'S NAME_____ DATE DUE_____

APPENDIX K

BRAINSTORMING

Groups often use brainstorming to identify problems, list possible causes and suggest solutions. Brainstorming helps produce creative, diverse thinking and numerous ideas relating to a clearly specified objective.

Needs: Leader, recorder; flip chart or chalkboard; relaxed, friendly atmosphere, distraction-free location.

Starting Point: State clearly and write on flip chart the objective or focus of the session, e.g., "List the problems that exist concerning testing in our department," or "List ways to reduce down time of the air conditioning system."

Rules:

(1) NO CRITICISM

Criticism and negative discussion of ideas are absolutely and positively forbidden. Judgment and evaluation are suspended until later.

(2) FREE-WHEELING ENCOURAGED

No idea is too wild or offbeat. All ideas should be heard. Impractical suggestions often trigger practical ones.

(3) QUANTITY IS DESIRABLE

The more ideas generated, the better. Leave off details, focus on creative, innovative concepts.

(4) COMBINATION AND IMPROVEMENT ARE SOUGHT

Group members should seek to improve, combine and refine earlier suggestions into better ideas.

Other Considerations: The leader should facilitate the participation of everyone. Participation in sequence can be very helpful. Each member speaks in turn around the group, saying "pass" if no idea has "jelled" at his turn. This procedure promotes full involvement, helps keep the group on target and precludes domination by one or a few members.

The recorder lists key elements of each idea on flip chart. If possible provide a list of the ideas generated to each member for review and reflection. New ideas may be added during this incubation period. At a subsequent meeting, the best or most important ideas may be selected and priorities established.

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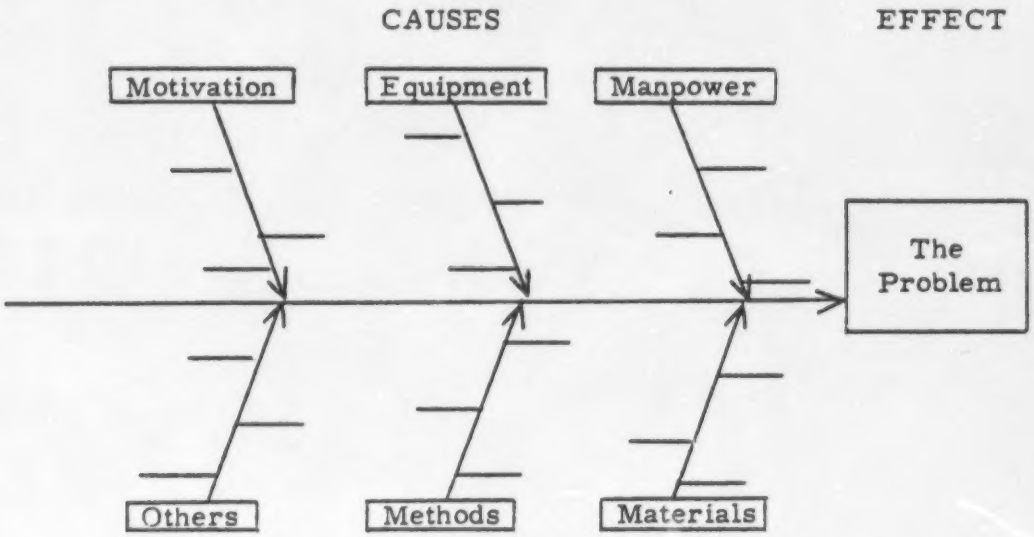
CAUSE AND EFFECT DIAGRAMMING

Cause and effect diagrams represent a useful way to identify and catagorize major and minor interrelated causes of a problem (or reasons for a success). A "fishbone" diagram (below) is used to picture these events.



Guidelines for using cause and effect diagrams follow:

1. Use brainstorming rules to identify major catagories and as many possible causes as the group can think of. Record all ideas on the diagram.

2. Be sure the diagram is visible to everyone.

3. Focus on why, what, where, who and how, but in a positive, solution-oriented atmosphere. Avoid finger-pointing and blame-placing.

4. Don't overcrowd the diagram. If causes cluster heavily in a single catagory, that group should become a separate diagram.

5. When all possible causes that can be thought of have been recorded, circle those that seem most likely. This may be done in a subsequent meeting. This is the first critical evaluation of ideas suggested.

In subsequent meetings, the most likely causes can be ranked in importance, relevant data collected, and solutions developed.

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PARETO ANALYSIS

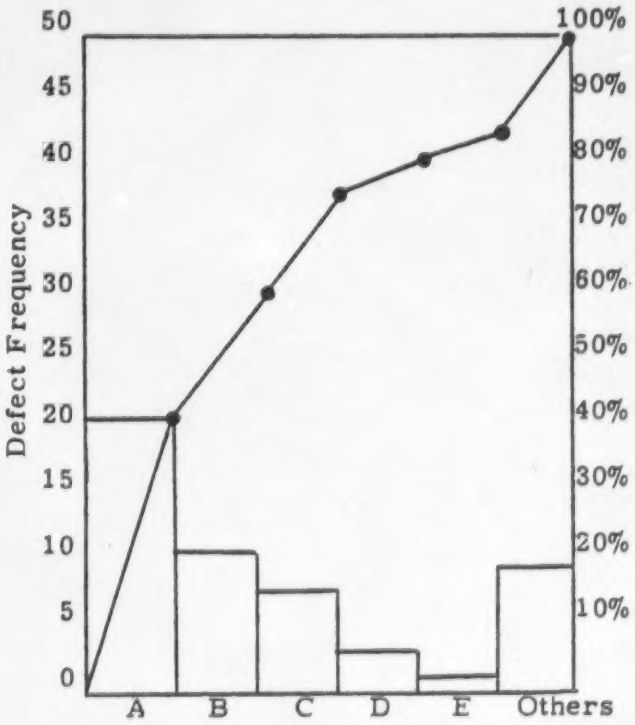
Pareto analysis focuses on the phenomenon of the "vital few and trivial many." Vilfredo Pareto (1848-1923) applied the principle to illustrate graphically the unequal distribution of wealth, "10 percent of the population controls 90 percent of the wealth." Dr. J. N. Juran, an international leader in quality assurance, applied the principle widely, noting "a vital few members of almost any assortment account for most of the total effect." Resources allocated for improvement should be focused on the "vital few" projects that offer the greatest opportunity for improvments in service, cost, work flow, etc.

Application of Pareto analysis often consists of listing the contributions to a problem in order of their importance (frequency, cost, idle time, etc.), their percentage of the total, and cumulative percentages. To illustrate:

Tabular

Dept.	Defects	Percent	Cum. Percent
A	20	40	40
B	10	20	60
C	7	14	74
D	3	6	80
E	1	2	82
Others	9	18	100
Totals	50	100	

Graphic



Pareto concepts are helpful in visualizing the main problems whether classified by effect--cost, defects, delay, etc.--or by cause--materials, equipment, process, operator. Pareto diagrams are also useful for presentations and for comparing changes over time or following some intervention. Similar graphs also serve well to illustrate services rendered and other measures of output.

10 KEYS TO SUCCESSFUL QUALITY CIRCLE PROGRAMS

- SUPPORTIVE MANAGEMENT
- PEOPLE BUILDING PHILOSOPHY
- VOLUNTARY MEMBERSHIP
- MEMBERS HELP EACH OTHER GROW
- PROJECTS ARE CIRCLE (NOT INDIVIDUAL) EFFORTS
- LEADER GETS PARTICIPATION FROM EVERYONE
- TRAINING IS PROVIDED TO MEMBERS AND MANAGEMENT
- CREATIVITY IS ENCOURAGED
- PROJECTS ARE RELATED TO MEMBERS' WORK
- QUALITY CONSCIOUSNESS IS DEVELOPED

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